A new possible Theory of Mathematical Connections between some Ramanujan's equations and Approximations to π, the equations of Inflationary Cosmology concerning the scalar field ϕ, the Inflaton mass, the Higgs boson mass and the Pion meson $\pi^{\pm}$ mass

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Abstract

In this research thesis, we have described a new possible Theory of Mathematical Connections between some Ramanujan's equations and Approximations to π, the equations of Inflationary Cosmology concerning the scalar field ϕ, the Inflaton mass, the Higgs boson mass and the Pion meson $\pi^{\pm}$ mass

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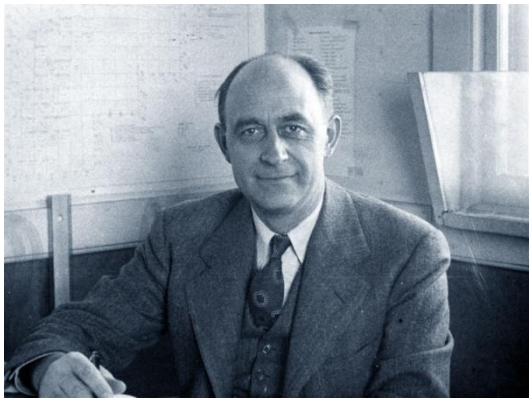


https://www.britannica.com/biography/Srinivasa-Ramanujan
https://biografieonline.it/foto-enrico-fermi

Summary

In this research thesis, we have analyzed further Ramanujan formulas and described new mathematical connections with some sectors of Particle Physics. In the course of the discussion we describe and highlight the connections between some developments of Ramanujan equations utilizing the Lucas and/or Fibonacci numbers and particles type solutions such as the mass of the Higgs boson, those in the range of the mass of candidates" glueball ", the scalar meson $f_0(1710)$ and some others baryons/mesons. Principally the solutions of Ramanujan equations, connected with the masses of the π mesons (139.576 and 134.9766 MeV) have been described and highlighted. Furthermore, we have obtained also the values of some black hole entropies.

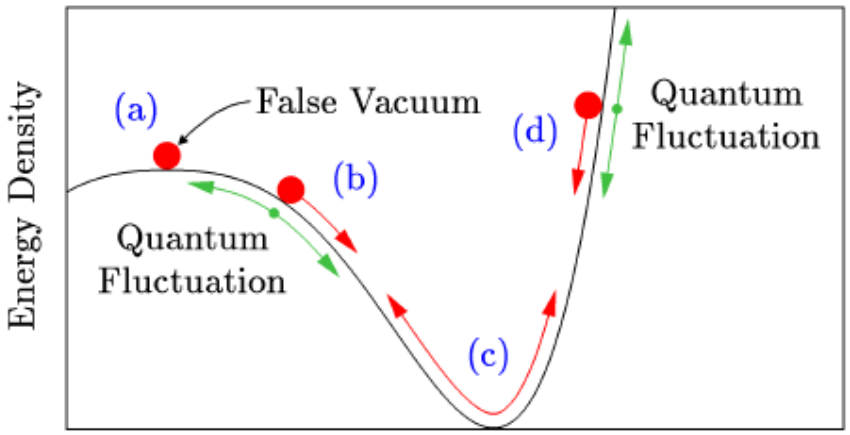
Is our opinion, that the possible connections between the mathematical developments of some Rogers-Ramanujan continued fractions, the value of the dilaton and that of "the dilaton mass calculated as a type of Higgs boson that is equal about to 125 GeV", the Higgs boson mass itself and the like-particle solutions (masses of Pion mesons), are fundamental.

All the results of the most important connections are highlighted in blue throughout the drafting of the paper

Proposal and discussion

We calculate the 4096th (4096 = 64^2) root of the value of scalar field and from it, we obtain 64

Inflationary Cosmology: Exploring the Universe from the Smallest to the Largest Scales



$$\sqrt[4096]{\frac{1}{1.2175 \times 10^{20}}} = 0.98877237\ldots$$

$$\sqrt{\log_{0.98877237}\left(\frac{1}{1.2175 \times 10^{20}}\right)} = 64.0000\ldots$$

$$64^2 = 4096$$

where ϕ is the scalar field.

Thence, we obtain:

$$\sqrt[4096]{\frac{1}{\phi}} = 0.98877237\ ; \quad \sqrt{\log_{0.98877237}\left(\frac{1}{\phi}\right)} = 64\ ; \quad 64^2 = 4096$$

Now, we calculate the 4096th root of the value of inflaton mass and from it we obtain, also here, 64

Generalized dilaton–axion models of inflation, de Sitter vacua and spontaneous SUSY breaking in supergravity

Table 2 The masses of inflaton, axion and gravitino, and the VEVs of F- and D-fields derived from our models by fixing the amplitude A_s according to PLANCK data – see Eq. (57). The value of $\langle F_T \rangle$ for a positive ω_1 is not fixed by A_s

α	3	4		5		6		7	
$\mathrm{sgn}(\omega_1)$	$-$	$+$	$-$	$+$	$-$	$+$	$-$	$-$	
m_φ	2.83	2.95	2.73	2.71	2.71	2.53	2.58	1.86	$\times 10^{13}$ GeV
$m_{t'}$	0	0.93	1.73	2.02	2.02	4.97	2.01	1.56	$\times 10^{13}$ GeV
$m_{3/2}$	≥ 1.41	2.80	0.86	2.56	0.64	3.91	0.49	0.29	$\times 10^{13}$ GeV
$\langle F_T \rangle$	any	$\neq 0$	0	$\neq 0$	0	$\neq 0$	0	0	$\times 10^{31}$ GeV^2
$\langle D \rangle$	8.31	4.48	5.08	3.76	3.76	3.25	2.87	1.73	$\times 10^{31}$ GeV^2

$m_\varphi = 2.542 - 2.33 * 10^{13}$ GeV with an average of $2.636 * 10^{13}$ GeV

$$\sqrt[4096]{\frac{1}{2.83 \times 10^{13}}} = 0.992466536725379764...$$

$$\sqrt{\log_{0.99246653}\left(\frac{1}{2.83 \times 10^{13}}\right)} = 64.0000...$$

$$64^2 = 4096$$

where m_φ is the inflaton mass.

Thence we obtain:

$$\sqrt[4096]{\frac{1}{m_\varphi}} = 0.99246653\ ;\quad \sqrt{\log_{0.99246653}\left(\frac{1}{m_\varphi}\right)} = 64\ ;\quad 64^2 = 4096$$

We have the following mathematical connections:

$$\sqrt{\log_{0.98877237}\left(\frac{1}{1.2175\times10^{20}}\right)} = 64;\qquad \sqrt{\log_{0.99246653}\left(\frac{1}{2.83\times10^{13}}\right)} = 64$$

$$\sqrt{\log_{0.98877237}\left(\frac{1}{1.2175\times10^{20}}\right)} = \sqrt{\log_{0.99246653}\left(\frac{1}{2.83\times10^{13}}\right)} = 64$$

From Ramanujan collected papers

$$g_{22} = \sqrt{(1+\sqrt{2})}.$$

Hence

$$\begin{aligned} 64g_{22}^{24} &= e^{\pi\sqrt{22}} - 24 + 276e^{-\pi\sqrt{22}} - \cdots, \\ 64g_{22}^{-24} &= 4096e^{-\pi\sqrt{22}} + \cdots, \end{aligned}$$

so that

$$64(g_{22}^{24} + g_{22}^{-24}) = e^{\pi\sqrt{22}} - 24 + 4372e^{-\pi\sqrt{22}} + \cdots = 64\{(1+\sqrt{2})^{12} + (1-\sqrt{2})^{12}\}.$$

Hence

$$e^{\pi\sqrt{22}} = 2508951.9982\ldots.$$

Again

$$G_{37} = (6+\sqrt{37})^{\frac{1}{4}},$$

$$\begin{aligned} 64G_{37}^{24} &= e^{\pi\sqrt{37}} + 24 + 276e^{-\pi\sqrt{37}} + \cdots, \\ 64G_{37}^{-24} &= 4096e^{-\pi\sqrt{37}} - \cdots, \end{aligned}$$

so that

$$64(G_{37}^{24} + G_{37}^{-24}) = e^{\pi\sqrt{37}} + 24 + 4372e^{-\pi\sqrt{37}} - \cdots = 64\{(6+\sqrt{37})^{6} + (6-\sqrt{37})^{6}\}.$$

Hence

$$e^{\pi\sqrt{37}} = 199148647.999978\ldots.$$

Similarly, from

$$g_{58} = \sqrt{\left(\frac{5+\sqrt{29}}{2}\right)},$$

we obtain

$$64(g_{58}^{24} + g_{58}^{-24}) = e^{\pi\sqrt{58}} - 24 + 4372e^{-\pi\sqrt{58}} + \cdots = 64\left\{\left(\frac{5+\sqrt{29}}{2}\right)^{12} + \left(\frac{5-\sqrt{29}}{2}\right)^{12}\right\}.$$

Hence

$$e^{\pi\sqrt{58}} = 24591257751.99999982\ldots.$$

From the following expression (see above part of paper), we obtain:

$$e^{\pi\sqrt{37}} + 24 + 4372e^{-\pi\sqrt{37}} - \cdots = 64\{(6+\sqrt{37})^6 + (6-\sqrt{37})^6\}.$$

(((exp(Pi*sqrt37)+24+(4096+276)exp-(Pi*sqrt37))) / ((((6+sqrt37)^6+(6-sqrt37)^6))))

$$\frac{\exp(\pi\sqrt{37}) + 24 + (4096+276)\exp(-(\pi\sqrt{37}))}{(6+\sqrt{37})^6 + (6-\sqrt{37})^6} = \frac{24 + 4372\,e^{-\sqrt{37}\,\pi} + e^{\sqrt{37}\,\pi}}{(6-\sqrt{37})^6 + (6+\sqrt{37})^6} =$$

$$= \frac{24 + 4372\,e^{-\sqrt{37}\,\pi} + e^{\sqrt{37}\,\pi}}{(6-\sqrt{37})^6 + (6+\sqrt{37})^6} \text{ is a transcendental number } =$$

$$= 64.000000000000000000779965901541408776562042740155278984 30\ldots \sim 64$$

From which:

(((exp(Pi*sqrt37)+24+(x+276)exp-(Pi*sqrt37)))/((((6+sqrt37)^6+(6-sqrt37)^6))) = 64

$$\frac{\exp(\pi\sqrt{37}) + 24 + (x+276)\exp(-(\pi\sqrt{37}))}{(6+\sqrt{37})^6 + (6-\sqrt{37})^6} = 64$$

Exact result:

$$\frac{e^{-\sqrt{37}\,\pi}(x+276) + e^{\sqrt{37}\,\pi} + 24}{(6-\sqrt{37})^6 + (6+\sqrt{37})^6} = 64$$

Alternate forms:

$$\frac{e^{-\sqrt{37}\,\pi}\,(x+276)}{3\,111\,698}+\frac{e^{\sqrt{37}\,\pi}}{3\,111\,698}+\frac{12}{1\,555\,849}=64$$

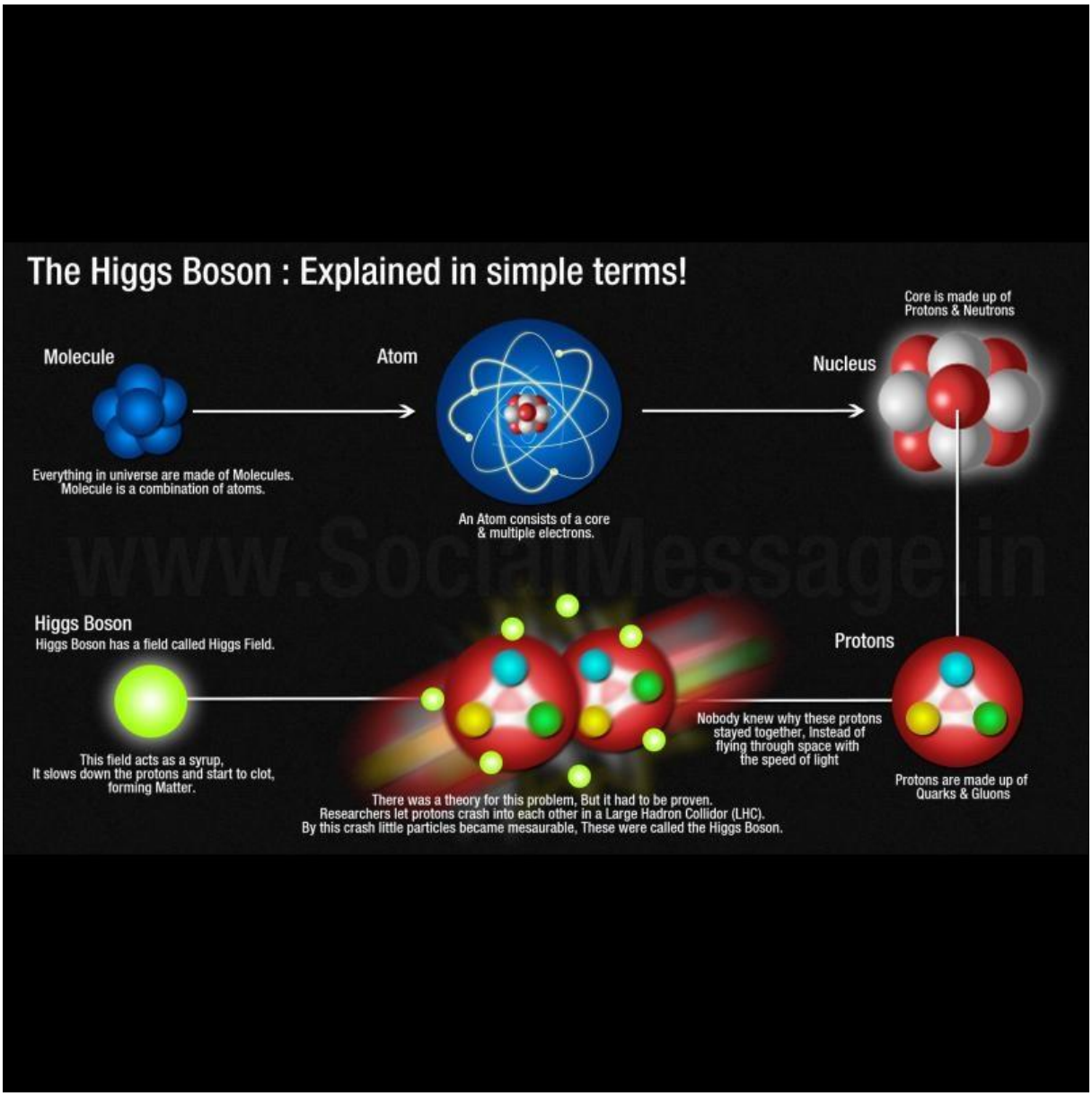
$$\frac{e^{-\sqrt{37}\,\pi}\left(x+e^{2\sqrt{37}\,\pi}+24\,e^{\sqrt{37}\,\pi}+276\right)}{3\,111\,698}=64$$

$$\frac{e^{-\sqrt{37}\,\pi}\,x}{\left(6-\sqrt{37}\right)^6+\left(6+\sqrt{37}\right)^6}+\frac{e^{\sqrt{37}\,\pi}}{\left(6-\sqrt{37}\right)^6+\left(6+\sqrt{37}\right)^6}+\frac{276\,e^{-\sqrt{37}\,\pi}}{\left(6-\sqrt{37}\right)^6+\left(6+\sqrt{37}\right)^6}+\frac{24}{\left(6-\sqrt{37}\right)^6+\left(6+\sqrt{37}\right)^6}-64=0$$

$$x=-276+199\,148\,648\,e^{\sqrt{37}\,\pi}-e^{2\sqrt{37}\,\pi}$$

$$x\approx 4096.0$$

Higgs Boson


The Higgs Boson : Explained in simple terms!
Molecule
Atom
Nucleus
Core is made up of Protons & Neutrons
Everything in universe are made of Molecules. Molecule is a combination of atoms.
An Atom consists of a core & multiple electrons.
www.SocialMessage.in
Higgs Boson
Higgs Boson has a field called Higgs Field.
Protons
This field acts as a syrup, It slows down the protons and start to clot, forming Matter.
Nobody knew why these protons stayed together, Instead of flying through space with the speed of light
Protons are made up of Quarks & Gluons
There was a theory for this problem, But it had to be proven.
Researchers let protons crash into each other in a Large Hadron Collidor (LHC).
By this crash little particles became mesaurable, These were called the Higgs Boson.

http://therealmrscience.net/exactly-what-does-the-higgs-boson-do.html

From the above values of scalar field ϕ, and of the inflaton mass m_{φ} , we obtain results that are in the range of the Higgs boson mass:

$$2\sqrt{\log_{0.98877237}\left(\frac{1}{1.2175\times 10^{20}}\right)}-\pi+\frac{1}{\phi}$$

125.476...

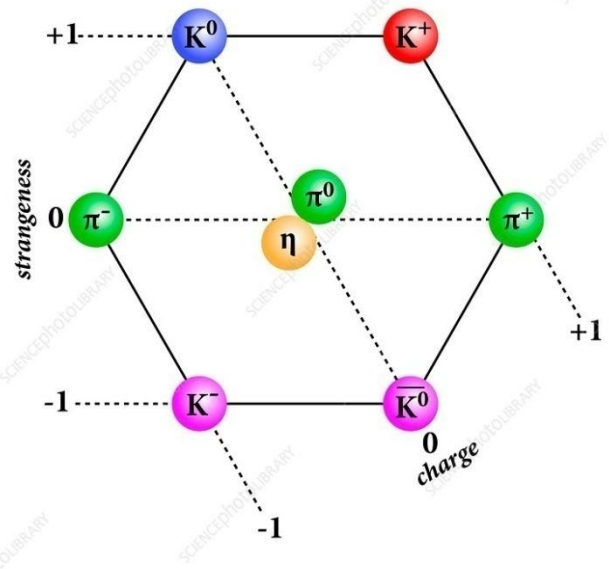
and

$$2\sqrt{\log_{0.99246653}\left(\frac{1}{2.83\times 10^{13}}\right)}-\pi+\frac{1}{\phi}$$

125.476...

Pion mesons

https://www.sciencephoto.com/media/476068/view/meson-octet-diagram



Meson octet. Diagram organising mesons into an octet according to their charge and strangeness. Particles along the same diagonal line share the same charge; positive (+1), neutral (0), or negative (-1). Particles along the same horizontal line share the same strangeness. Strangeness is a quantum property that is conserved in strong and

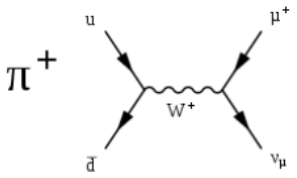
electromagnetic interactions, between particles, but not in weak interactions. Mesons are made up of one quark and one antiquark. Particles with a strangeness of +1, such as the kaons (blue and red) in the top line, contain one strange antiquark. Particles with a strangeness of 0, such as the pion mesons (green) and eta meson (yellow) in the middle line, contain no strange quarks. Particles with a strangeness of -1, such as the antiparticle kaons (pink) in the bottom line, contain one strange quark

The $\pi^{\pm}$ mesons have a mass of 139.6 MeV/c^2 and a mean lifetime of 2.6033×10^{-8} s. They decay due to the weak interaction. The primary decay mode of a pion, with a branching fraction of 0.999877, is a leptonic decay into a muon and a muon neutrino:

$$\pi^+ \rightarrow \mu^+ + \nu_\mu$$
$$\pi^- \rightarrow \mu^- + \bar{\nu}_\mu$$

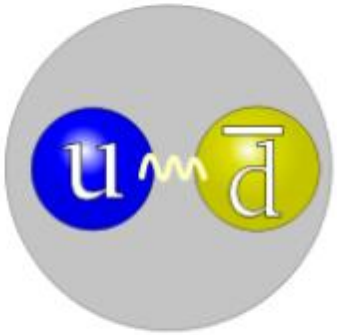
The second most common decay mode of a pion, with a branching fraction of 0.000123, is also a leptonic decay into an electron and the corresponding electron antineutrino. This "electronic mode" was discovered at CERN in 1958:[6]

$$\pi^+ \rightarrow e^+ + \nu_e$$
$$\pi^- \rightarrow e^- + \bar{\nu}_e$$



Feynman diagram of the dominant leptonic pion decay.

Pion



The quark structure of the pion.

Composition	π^+: $u\bar{d}$ π^0: $u\bar{u}$ or $d\bar{d}$ π^-: $\bar{u}d$
Statistics	Bosonic
Interactions	Strong, Weak, Electromagnetic and Gravity
Symbol	π^+, π^0, and π^-
Theorized	Hideki Yukawa (1935)
Discovered	César Lattes, Giuseppe Occhialini (1947) and Cecil Powell
Types	3
Mass	$\pi^{\pm}$: 139.570 18(35) MeV/c^2 π^0: 134.9766(6) MeV/c^2

From the above values of scalar field ϕ, and the inflaton mass m_φ , we obtain also the value of Pion meson $\pi^{\pm}$ = 139.57018 MeV/c^2

$$2\sqrt{\log_{0.98877237}\left(\frac{1}{1.2175\times 10^{20}}\right)+11+\frac{1}{\phi}}$$

139.618...

and

$$2\sqrt{\log_{0.99246653}\left(\frac{1}{2.83\times 10^{13}}\right)+11+\frac{1}{\phi}}$$

139.618...

The $\pi^{\pm}$ mesons have a mass of 139.6 MeV/c2 and a mean lifetime of 2.6033×10^{-8} s. They decay due to the weak interaction. The primary decay mode of a pion, with a branching fraction of 0.999877, is a leptonic decay into a muon and a muon neutrino.

Note that the value 0.999877 is very closed to the following Rogers-Ramanujan continued fraction (http://www.bitman.name/math/article/102/109/):

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5}\sqrt[4]{5^3}}-1}-\varphi+1}=1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+...}}}}\approx 0.9991104684$$

We observe that also the results of 4096th root of the values of scalar field ϕ, and the inflaton mass m_φ:

$$\sqrt[4096]{\frac{1}{\phi}} = 0.98877237\ ; \quad \sqrt[4096]{\frac{1}{m_\varphi}} = 0.99246653$$

are very closed to the above continued fraction.

Furthermore, from the results concerning the scalar field ϕ (0.98877237, 1.2175e+20), and the inflaton mass m_φ (0.99246653, 2.83e+13), we obtain, performing the 10th root:

((((2sqrt (((log base 0.98877237 ((1/1.2175e+20)))))-Pi))))^1/10

Input interpretation:

$$\sqrt[10]{2\sqrt{\log_{0.98877237}\left(\frac{1}{1.2175\times 10^{20}}\right)}-\pi}$$

Result:

1.620472942364990195996419034511458317811826267744760835367...

1.620472942…

And:

1/10^27 [(47+4)/10^3+((((2sqrt (((log base 0.98877237 ((1/1.2175e+20)))))-Pi))))^1/10]

where 47 and 4 are Lucas numbers

$$\frac{1}{10^{27}}\left(\frac{47+4}{10^3}+\sqrt[10]{2\sqrt{\log_{0.98877237}\left(\frac{1}{1.2175\times 10^{20}}\right)}-\pi}\right)$$

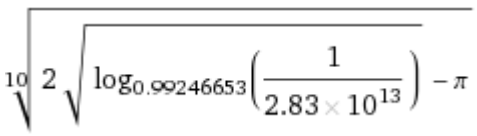
Result:

$1.671473...\times 10^{-27}$

1.671473…*10^{-27} result practically equal to the proton mass

We have also:

((((2sqrt (((log base 0.99246653 ((1/2.83e+13)))))-Pi))))^1/10



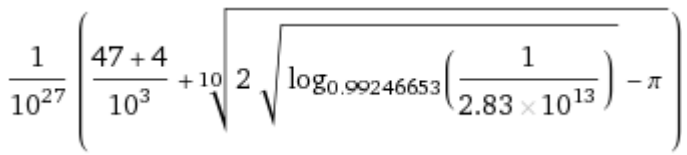
Result:

1.620472850161415439289586204886587162444405282709701447326…

1.62047285…

And:

1/10^27 [(47+4)/10^3+((((2sqrt (((log base 0.99246653 ((1/2.83e+13)))))-Pi))))^1/10]



Result:

$1.671473\ldots \times 10^{-27}$

1.671473…*10^{-27} result that is practically equal to the proton mass as the previous

Trascendental numbers

From the paper of S. Ramanujan "*Modular equations and approximations to π*"

We have the following expression:

$$\frac{3}{\pi} = 1 - 24\left(\frac{1}{e^{2\pi}-1} + \frac{2}{e^{4\pi}-1} + \frac{3}{e^{6\pi}-1} + \cdots\right)$$

1-24[(1/(e^(2Pi)-1)) + (2/(e^(4Pi)-1)) + (3/(e^(6Pi)-1))]

$$1 - 24\left(\frac{1}{e^{2\pi}-1} + \frac{2}{e^{4\pi}-1} + \frac{3}{e^{6\pi}-1}\right)$$

Decimal approximation:

0.954929659721612900604724361833045671977574376370221277342...

0.954929659….

Property:

$1 - 24\left(\frac{1}{-1+e^{2\pi}} + \frac{2}{-1+e^{4\pi}} + \frac{3}{-1+e^{6\pi}}\right)$ is a transcendental number

Series representations:

$$1 - 24\left(\frac{1}{e^{2\pi}-1} + \frac{2}{e^{4\pi}-1} + \frac{3}{e^{6\pi}-1}\right) = 1 - \frac{24}{-1+e^{8\sum_{k=0}^{\infty}(-1)^k/(1+2k)}} - \frac{48}{-1+e^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}} - \frac{72}{-1+e^{24\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}$$

$$1 - 24\left(\frac{1}{e^{2\pi}-1} + \frac{2}{e^{4\pi}-1} + \frac{3}{e^{6\pi}-1}\right) = 1 - \frac{24}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{8\sum_{k=0}^{\infty}(-1)^k/(1+2k)}} - \frac{48}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}} - \frac{72}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{24\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}$$

$$1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)=1-\frac{24}{-1+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{8\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}-$$
$$\frac{48}{-1+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}-\frac{72}{-1+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{24\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}$$

Integral representations:

$$1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)=$$
$$1-\frac{24}{-1+e^{4\int_0^{\infty}1/(1+t^2)\,dt}}-\frac{48}{-1+e^{8\int_0^{\infty}1/(1+t^2)\,dt}}-\frac{72}{-1+e^{12\int_0^{\infty}1/(1+t^2)\,dt}}$$

$$1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)=$$
$$1-\frac{24}{-1+e^{4\int_0^{\infty}\sin(t)/t\,dt}}-\frac{48}{-1+e^{8\int_0^{\infty}\sin(t)/t\,dt}}-\frac{72}{-1+e^{12\int_0^{\infty}\sin(t)/t\,dt}}$$

$$1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)=$$
$$1-\frac{24}{-1+e^{8\int_0^{1}\sqrt{1-t^2}\,dt}}-\frac{48}{-1+e^{16\int_0^{1}\sqrt{1-t^2}\,dt}}-\frac{72}{-1+e^{24\int_0^{1}\sqrt{1-t^2}\,dt}}$$

Note that the value of the following Rogers-Ramanujan continued fraction is practically equal to the result of the previous expression. Indeed:

$$\left(\frac{e^{-\frac{\pi}{5}}}{\sqrt{(\varphi-1)\sqrt{5}}-\varphi+1}=1-\frac{e^{-\pi}}{1+\frac{e^{-2\pi}}{1+\frac{e^{-3\pi}}{1+\frac{e^{-4\pi}}{1+\ldots}}}}\approx 0.9568666373\right)\cong$$

$$\cong \left(1 - 24 \left(\frac{1}{e^{2\pi} - 1} + \frac{2}{e^{4\pi} - 1} + \frac{3}{e^{6\pi} - 1} \right) \right) = 0.954929659\ldots$$

We know that:

$$\omega \quad \left| \; 6 \; \right| \quad m_{u/d} = 0 - 60 \quad \left| \; 0.910 - 0.918 \right.$$

$$\omega/\omega_3 \; \left| \; 5+3 \; \right| \; m_{u/d} = 255 - 390 \; \left| \; 0.988 - 1.18 \right.$$

$$\omega/\omega_3 \; \left| \; 5+3 \; \right| \; m_{u/d} = 240 - 345 \; \left| \; 0.937 - 1.000 \right.$$

that are the various Regge slope of Omega mesons

From the paper:

Generalized dilaton–axion models of inflation, de Sitter vacua and spontaneous SUSY breaking in supergravity

Table 1 The predictions for the inflationary parameters (n_s, r), and the values of φ at the horizon crossing (φ_i) and at the end of inflation (φ_f), in the case $3 \leq \alpha \leq \alpha_*$ with both signs of ω_1. The α parameter is taken to be integer, except of the upper limit $\alpha_* \equiv (7+\sqrt{33})/2$

α	3	4		5	6		α_*
$\mathrm{sgn}(\omega_1)$	$-$	$+$	$-$	$+/-$	$+$	$-$	$-$
n_s	0.9650	0.9649	0.9640	0.9639	0.9634	0.9637	0.9632
r	0.0035	0.0010	0.0013	0.0007	0.0005	0.0004	0.0003
$-\kappa\varphi_i$	5.3529	3.5542	3.9899	3.2657	3.0215	2.7427	2.5674
$-\kappa\varphi_f$	0.9402	0.7426	0.8067	0.7163	0.6935	0.6488	0.6276

We note that the value of inflationary parameter n_s (spectral index) for $\alpha = 3$ is equal to 0.9650 and that the range of Regge slope of the following Omega meson is:

$$\omega/\omega_3 \; \left| \; 5+3 \; \right| \; m_{u/d} = 240 - 345 \; \left| \; 0.937 - 1.000 \right.$$

the values 0.954929659... and 0.9568666373 are very near to the above Regge slope, to the spectral index n_s and to the dilaton value 0.989117352243 = ϕ

We observe that 0.954929659 has the following property:

$$1-24\left(\frac{1}{-1+e^{2\pi}}+\frac{2}{-1+e^{4\pi}}+\frac{3}{-1+e^{6\pi}}\right) \text{ is a transcendental number}$$

= 0.9549296597216129 the result is a transcendental number

We have also that, performing the 128th root, we obtain:

((((1-24[(1/(e^(2Pi)-1)) + (2/(e^(4Pi)-1)) + (3/(e^(6Pi)-1))])))^1/128

Input:

$$\sqrt[128]{1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)}$$

Decimal approximation:

0.999639771179582593534832998563472389939029398477483191618...

0.9996397711… is also a transcendental number

This result is connected to the primary decay mode of a pion, with a branching fraction of 0.999877, that is a leptonic decay into a muon and a muon neutrino.

Property:

$$\sqrt[128]{1-24\left(\frac{1}{-1+e^{2\pi}}+\frac{2}{-1+e^{4\pi}}+\frac{3}{-1+e^{6\pi}}\right)} \text{ is a transcendental number}$$

Series representations:

$$\sqrt[128]{1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)}=\left(1-24\left(\frac{1}{-1+e^{8\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}+\frac{2}{-1+e^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}+\frac{3}{-1+e^{24\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}\right)\right)\text{^}(1/128)$$

$$\sqrt[128]{1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)}=\sqrt[128]{1-24\left(\frac{1}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{2\pi}}+\frac{2}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{4\pi}}+\frac{3}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{6\pi}}\right)}$$

$$\sqrt[128]{1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)}=\sqrt[128]{1-24\left(\frac{1}{-1+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{2\pi}}+\frac{2}{-1+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{4\pi}}+\frac{3}{-1+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{6\pi}}\right)}$$

Integral representations:

$$\sqrt[128]{1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)}=\sqrt[128]{1-24\left(\frac{1}{-1+e^{4\int_0^{\infty}1/(1+t^2)\,dt}}+\frac{2}{-1+e^{8\int_0^{\infty}1/(1+t^2)\,dt}}+\frac{3}{-1+e^{12\int_0^{\infty}1/(1+t^2)\,dt}}\right)}$$

$$\sqrt[128]{1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)}=\sqrt[128]{1-24\left(\frac{1}{-1+e^{4\int_0^{\infty}\sin(t)/t\,dt}}+\frac{2}{-1+e^{8\int_0^{\infty}\sin(t)/t\,dt}}+\frac{3}{-1+e^{12\int_0^{\infty}\sin(t)/t\,dt}}\right)}$$

$$\sqrt[128]{1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)}=$$
$$\sqrt[128]{1-24\left(\frac{1}{-1+e^{8\int_0^1\sqrt{1-t^2}\,dt}}+\frac{2}{-1+e^{16\int_0^1\sqrt{1-t^2}\,dt}}+\frac{3}{-1+e^{24\int_0^1\sqrt{1-t^2}\,dt}}\right)}$$

Performing:

log base 0.999639771179((((1-24[(1/(e^(2Pi)-1)) + (2/(e^(4Pi)-1)) + (3/(e^(6Pi)-1))]))))-Pi+1/golden ratio

we obtain:

Input interpretation:

$$\log_{0.999639771179}\left(1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)\right)-\pi+\frac{1}{\phi}$$

$\log_b(x)$ is the base-b logarithm

ϕ is the golden ratio

Result:

125.476441...

125.476441…. result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Series representations:

$$\log_{0.9996397711790000}\left(1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)\right)-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi-\frac{\sum_{k=1}^{\infty}\frac{(-24)^k\left(\frac{1}{1-e^{2\pi}}-\frac{2}{-1+e^{4\pi}}-\frac{3}{-1+e^{6\pi}}\right)^k}{k}}{\log(0.9996397711790000)}$$

$$\log_{0.9996397711790000}\left(1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)\right)-\pi+\frac{1}{\phi}=$$
$$\frac{1.000000000000}{\phi}-1.000000000000\,\pi+$$
$$\log\left(1-24\left(\frac{1}{-1+e^{2\pi}}+\frac{2}{-1+e^{4\pi}}+\frac{3}{-1+e^{6\pi}}\right)\right)$$
$$\left(-2775.513305165-1.000000000000\sum_{k=0}^{\infty}(-0.0003602288210000)^k\,G(k)\right)$$
$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}\,k}{2\,(1+k)\,(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

And:

log base 0.999639771179((((1-24[(1/(e^(2Pi)-1)) + (2/(e^(4Pi)-1)) + (3/(e^(6Pi)-1))]))))+11+1/golden ratio

where 11 is a Lucas number

Input interpretation:

$$\log_{0.999639771179}\left(1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)\right)+11+\frac{1}{\phi}$$

$\log_b(x)$ is the base-b logarithm

ϕ is the golden ratio

Result:

139.618034...

139.618034…. result practically equal to the rest mass of Pion meson 139.57

Series representations:

$$\log_{0.9996397711790000}\left(1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)\right)+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}-\frac{\sum_{k=1}^{\infty}\frac{(-24)^k\left(\frac{1}{1-e^{2\pi}}-\frac{2}{-1+e^{4\pi}}-\frac{3}{-1+e^{6\pi}}\right)^k}{k}}{\log(0.9996397711790000)}$$

$$\log_{0.9996397711790000}\left(1-24\left(\frac{1}{e^{2\pi}-1}+\frac{2}{e^{4\pi}-1}+\frac{3}{e^{6\pi}-1}\right)\right)+11+\frac{1}{\phi}=$$

$$11.00000000000+\frac{1.000000000000}{\phi}+$$

$$\log\left(1-24\left(\frac{1}{-1+e^{2\pi}}+\frac{2}{-1+e^{4\pi}}+\frac{3}{-1+e^{6\pi}}\right)\right)$$

$$\left(-2775.513305165-1.000000000000\sum_{k=0}^{\infty}(-0.0003602288210000)^k\,G(k)\right)$$

$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}\,k}{2\,(1+k)\,(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

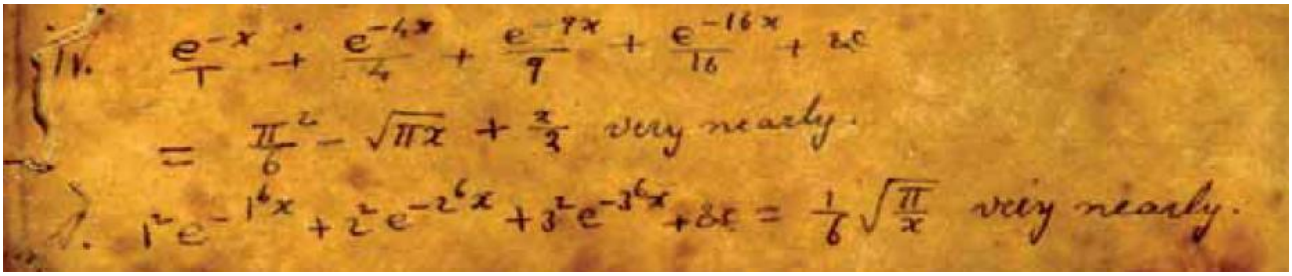
In conclusion, we have shown in this proposal a possible theoretical connection between some parameters of inflationary cosmology, of particle masses (Higgs boson and Pion meson $\pi\pm$) and some fundamental equations of Ramanujan's mathematics.

Further, we note that π, ϕ, 1/ϕ and 11, that is a Lucas number (often in developing Ramanujan's equations we use Fibonacci and Lucas numbers), play a fundamental role in the development, and therefore, in the final results of Ramanujan's equations. This fact can be explained by admitting that π, ϕ, 1/ϕ and 11, and other numbers connected with Fibonacci and Lucas sequences, are not only mathematical constants and / or simple numbers, but "data", which inserted in the right place, and in the most various possible and always logical combinations, lead precisely to the solutions discussed so far: masses of particles, as described in the following paper and other physical and cosmological parameters.

From:

MANUSCRIPT BOOK 2 OF SRINIVASA RAMANUJAN

Pages 185-186



For x = 2, we obtain:

e^(-2)/1 + e^(-8)/4 + e^(-18)/9 + e^(-32)/16

Input:

$$\frac{1}{e^2} + \frac{1}{e^8 \times 4} + \frac{1}{e^{18} \times 9} + \frac{1}{e^{32} \times 16}$$

Decimal approximation:

0.135419150585809082998788153543982228554239225669845771435...

0.1354191505858090829987….

Property:

$$\frac{1}{16\,e^{32}} + \frac{1}{9\,e^{18}} + \frac{1}{4\,e^8} + \frac{1}{e^2}$$ is a transcendental number

Alternate form:

$$\frac{144\,e^{30} + 36\,e^{24} + 16\,e^{14} + 9}{144\,e^{32}}$$

Alternative representation:

$$\frac{1}{e^2} + \frac{1}{e^8\,4} + \frac{1}{e^{18}\,9} + \frac{1}{e^{32}\,16} = \frac{1}{\exp^2(z)} + \frac{1}{\exp^8(z)\,4} + \frac{1}{\exp^{18}(z)\,9} + \frac{1}{\exp^{32}(z)\,16} \quad \text{for } z = 1$$

Pi^2/6 - sqrt(2Pi)+2/2

Input:

$$\frac{\pi^2}{6} - \sqrt{2\,\pi} + \frac{2}{2}$$

Exact result:

$$1 + \frac{\pi^2}{6} - \sqrt{2\,\pi}$$

Decimal approximation:

0.138305792217225934056649881834979936211963160596860121105...

0.1383057922172….

Alternate form:

$$\frac{1}{6}\left(6+\pi^2-6\sqrt{2\pi}\right)$$

Series representations:

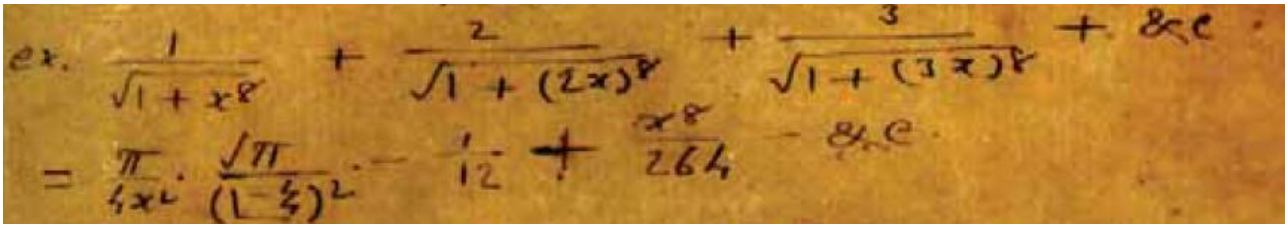
$$\frac{\pi^2}{6}-\sqrt{2\pi}+\frac{2}{2}=1+\frac{\pi^2}{6}-\sqrt{-1+2\pi}\sum_{k=0}^{\infty}(-1+2\pi)^{-k}\binom{\frac{1}{2}}{k}$$

$$\frac{\pi^2}{6}-\sqrt{2\pi}+\frac{2}{2}=1+\frac{\pi^2}{6}-\sqrt{-1+2\pi}\sum_{k=0}^{\infty}\frac{(-1)^k(-1+2\pi)^{-k}\left(-\frac{1}{2}\right)_k}{k!}$$

$$\frac{\pi^2}{6}-\sqrt{2\pi}+\frac{2}{2}=1+\frac{\pi^2}{6}-\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(2\pi-z_0)^k z_0^{-k}}{k!}$$

for not $((z_0\in\mathbb{R}$ and $-\infty<z_0\le 0))$

We have that:



1/(sqrt(1+2^8))+2/(sqrt(1+4^8))+3/(sqrt(1+6^8))

Input:

$$\frac{1}{\sqrt{1+2^8}}+\frac{2}{\sqrt{1+4^8}}+\frac{3}{\sqrt{1+6^8}}$$

Result:

$$\frac{1}{\sqrt{257}}+\frac{2}{\sqrt{65537}}+\frac{3}{\sqrt{1679617}}$$

Decimal approximation:

0.072505540676942506973866178749879082975111535970391876876...

0.0725055406769425….

Alternate forms:

$$\frac{\sqrt{257}}{257}+\frac{2\sqrt{65537}}{65537}+\frac{3\sqrt{1679617}}{1679617}$$

$$\frac{110077059329\sqrt{257}+863323138\sqrt{65537}+50529027\sqrt{1679617}}{28289804247553}$$

$$\frac{3}{\sqrt{1679617}}+\frac{65537\sqrt{257}+514\sqrt{65537}}{16843009}$$

-(((Pi/16 * sqrt(Pi)/(((0.602439i))^2)) - 1/12 + 2^8/264))

Input interpretation:

$$-\left(\frac{\pi}{16}\times\frac{\sqrt{\pi}}{(0.602439\,i)^2}-\frac{1}{12}+\frac{2^8}{264}\right)$$

i is the imaginary unit

Result:

0.0725482…

0.0725482…

Series representations:

$$-\left(\frac{\sqrt{\pi}\ \pi}{(0.602439\,i)^2\ 16}-\frac{1}{12}+\frac{2^8}{264}\right)=$$

$$-0.886364-\frac{0.172208\,\pi\sqrt{-1+\pi}\ \sum_{k=0}^{\infty}(-1+\pi)^{-k}\binom{\frac{1}{2}}{k}}{i^2}$$

$$-\left(\frac{\sqrt{\pi}\ \pi}{(0.602439\,i)^2\ 16}-\frac{1}{12}+\frac{2^8}{264}\right)=$$

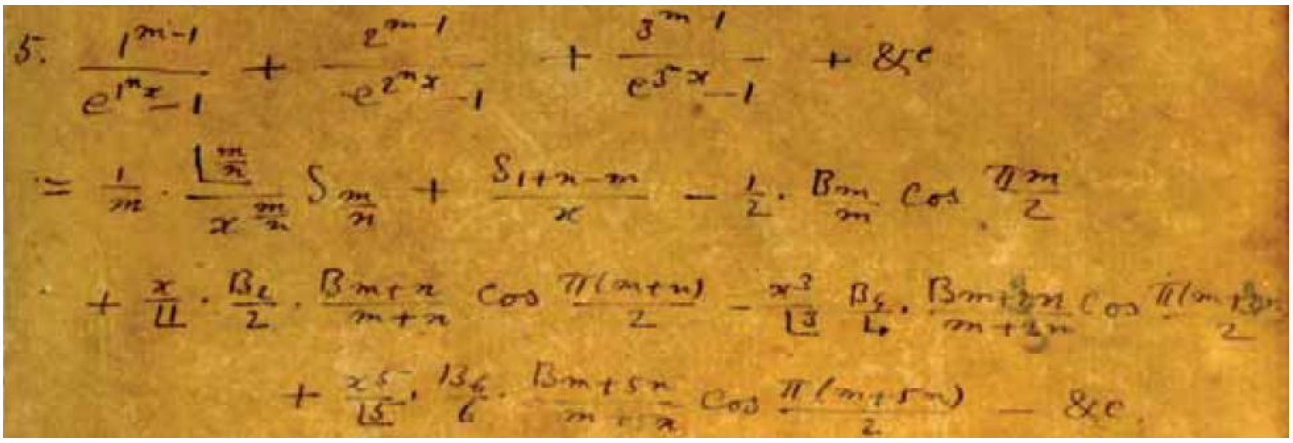
$$-0.886364-\frac{0.172208\,\pi\sqrt{-1+\pi}\ \sum_{k=0}^{\infty}\frac{(-1)^k(-1+\pi)^{-k}\left(-\frac{1}{2}\right)_k}{k!}}{i^2}$$

$$-\left(\frac{\sqrt{\pi}\ \pi}{(0.602439\ i)^2\ 16}-\frac{1}{12}+\frac{2^8}{264}\right)=$$

$$-0.886364-\frac{0.172208\ \pi\ \sqrt{z_0}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\ (\pi-z_0)^k\ z_0^{-k}}{k!}}{i^2}$$

for not $((z_0 \in \mathbb{R} \text{ and } -\infty < z_0 \leq 0))$

We have that:



For x = 2, m = 3, n = 5, we obtain:

1^2/(e^2-1) + 2^2/((e^(2^5*2)-1)) + 3^2/(e^10-1)

Input:

$$\frac{1^2}{e^2-1}+\frac{2^2}{e^{2^5\times 2}-1}+\frac{3^2}{e^{10}-1}$$

Exact result:

$$\frac{1}{e^2-1}+\frac{9}{e^{10}-1}+\frac{4}{e^{64}-1}$$

Decimal approximation:

0.156926260668752841733041266454542489912925580659169535248...

0.156926260668….

Property:

$\frac{1}{-1+e^2}+\frac{9}{-1+e^{10}}+\frac{4}{-1+e^{64}}$ is a transcendental number

Alternate forms:

$$\frac{117}{80\,(e-1)}-\frac{117}{80\,(1+e)}-\frac{1}{8\left(1+e^2\right)}-\frac{1}{4\left(1+e^4\right)}+\frac{9\left(-4+3\,e-2\,e^2+e^3\right)}{10\left(1-e+e^2-e^3+e^4\right)}-\frac{9\left(4+3\,e+2\,e^2+e^3\right)}{10\left(1+e+e^2+e^3+e^4\right)}-\frac{1}{2\left(1+e^8\right)}-\frac{1}{1+e^{16}}-\frac{2}{1+e^{32}}$$

$$\left(14+15\,e^2+16\,e^4+17\,e^6+18\,e^8+14\,e^{10}+14\,e^{12}+14\,e^{14}+14\,e^{16}+14\,e^{18}+14\,e^{20}+14\,e^{22}+14\,e^{24}+14\,e^{26}+14\,e^{28}+14\,e^{30}+14\,e^{32}+14\,e^{34}+14\,e^{36}+14\,e^{38}+14\,e^{40}+14\,e^{42}+14\,e^{44}+14\,e^{46}+14\,e^{48}+14\,e^{50}+14\,e^{52}+14\,e^{54}+14\,e^{56}+14\,e^{58}+14\,e^{60}+14\,e^{62}+4\,e^{64}+3\,e^{66}+2\,e^{68}+e^{70}\right)\Big/\left((e-1)\,(1+e)\left(1+e^2\right)\left(1+e^4\right)\left(1-e+e^2-e^3+e^4\right)\left(1+e+e^2+e^3+e^4\right)\left(1+e^8\right)\left(1+e^{16}\right)\left(1+e^{32}\right)\right)$$

Alternative representation:

$$\frac{1^2}{e^2-1}+\frac{2^2}{e^{2^5\times 2}-1}+\frac{3^2}{e^{10}-1}=\frac{1^2}{\exp^2(z)-1}+\frac{2^2}{\exp^{2^5\times 2}(z)-1}+\frac{3^2}{\exp^{10}(z)-1}\quad \text{for } z=1$$

Series representations:

$$\frac{1^2}{e^2-1}+\frac{2^2}{e^{2^5\times 2}-1}+\frac{3^2}{e^{10}-1}=\frac{1}{-1+\sum_{k=0}^{\infty}\frac{2^k}{k!}}+\frac{9}{-1+\sum_{k=0}^{\infty}\frac{10^k}{k!}}+\frac{4}{-1+\sum_{k=0}^{\infty}\frac{64^k}{k!}}$$

$$\frac{1^2}{e^2-1}+\frac{2^2}{e^{2^5\times 2}-1}+\frac{3^2}{e^{10}-1}=\frac{1}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^2}+\frac{9}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{10}}+\frac{4}{-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{64}}$$

$$\frac{1^2}{e^2-1}+\frac{2^2}{e^{2^5\times 2}-1}+\frac{3^2}{e^{10}-1}=\frac{4}{-1+\frac{1}{\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^{64}}}+\frac{9}{-1+\frac{1}{\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^{10}}}+\frac{1}{-1+\frac{1}{\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}\right)^{2}}}$$

From the sum of the three results

0.156926260668 + 0.0725055406769425 + 0.1354191505858090829987

We obtain:

288/(0.156926260668 + 0.0725055406769425 + 0.1354191505858090829987) – 7

Input interpretation:

$$\frac{288}{0.156926260668 + 0.0725055406769425 + 0.1354191505858090829987} - 7$$

Result:

782.363433138752419052397371399429803787766203218630144300 4...

782.363433.... result practically equal to the rest mass of Omega meson 782.65

((((288/(0.156926260668 + 0.07250554067 + 0.135419150585809) – 7))))*1/(2e)-4

Input interpretation:

$$\left(\frac{288}{0.156926260668 + 0.07250554067 + 0.135419150585809} - 7\right) \times \frac{1}{2\,e} - 4$$

Result:

139.90771129...

139.90771129… result practically equal to the rest mass of Pion meson 139.57

Alternative representation:

$$\frac{\frac{288}{0.156926260668000+0.0725055+0.135419150585809000}-7}{2\,e}-4 = \frac{\frac{288}{0.156926260668000+0.0725055+0.135419150585809000}-7}{2\exp(z)}-4 \quad \text{for } z = 1$$

Series representations:

$$\frac{\frac{288}{0.156926260668000+0.0725055+0.135419150585809000}-7}{2\,e}-4 = -4 + 391.182\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}$$

$$\frac{\frac{288}{0.156926260668000+0.0725055+0.135419150585809000}-7}{2\,e}-4 = -4 + \frac{391.182}{\sum_{k=0}^{\infty}\frac{1}{k!}}$$

$$\frac{\frac{288}{0.156926260668000+0.0725055+0.135419150585809000}-7}{2\,e}-4 = -4 + \frac{782.363}{\sum_{k=0}^{\infty}\frac{1+k}{k!}}$$

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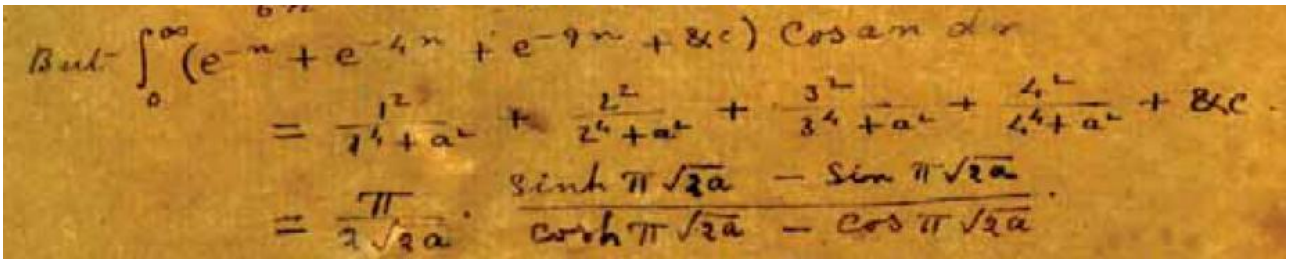

For a = √π, we obtain:

(((1/(1+Pi) + 4/(16+Pi) + 9/(81+Pi) + 16/(256+Pi))))

Input:

$$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}$$

Decimal approximation:

0.619126900492848208398758436404174065679752793032442804606...

0.6191269…

Property:

$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}$ is a transcendental number

Alternate forms:

$$\frac{30\left(15\,744+5734\,\pi+191\,\pi^2+\pi^3\right)}{(1+\pi)(16+\pi)(81+\pi)(256+\pi)}$$

$$\frac{472\,320+172\,020\,\pi+5730\,\pi^2+30\,\pi^3}{(1+\pi)(16+\pi)(81+\pi)(256+\pi)}$$

Alternative representations:

$$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}=\frac{1}{1+\cos^{-1}(-1)}+\frac{4}{16+\cos^{-1}(-1)}+\frac{9}{81+\cos^{-1}(-1)}+\frac{16}{256+\cos^{-1}(-1)}$$

$$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}=\frac{1}{1+180^\circ}+\frac{4}{16+180^\circ}+\frac{9}{81+180^\circ}+\frac{16}{256+180^\circ}$$

$$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}=\frac{1}{1+2\,E(0)}+\frac{4}{16+2\,E(0)}+\frac{9}{81+2\,E(0)}+\frac{16}{256+2\,E(0)}$$

Series representations:

$$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}=\frac{15\left(1968+2867\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+382\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+8\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3\right)}{\left(4+\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(64+\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(1+4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)\left(81+4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)}$$

$$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}=\left(30\left(15744+5734\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)+191\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3\right)\right)\Big/\left(\left(1+\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)\left(16+\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)\left(81+\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)\left(256+\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)\right)$$

$$\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}=$$
$$\left(30\left(15744+5734\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}+\right.\right.$$
$$191\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^2+$$
$$\left.\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)^3\right)\Bigg)\Bigg/$$
$$\left(\left(1+\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)\right.$$
$$\left(16+\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$
$$\left(81+\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)$$
$$\left.\left(256+\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}\right)\right)$$

(((1/(1+Pi) + 4/(16+Pi) + 9/(81+Pi) + 16/(256+Pi))))^1/64

Input:

$$\sqrt[64]{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}$$

Decimal approximation:

0.992536661649782822496434982320685367245676261428474266747...

0.9925366616…. result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1}=1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}}\approx 0.9991104684$$

and to the dilaton value $\mathbf{0.989117352243 = \phi}$

Property:

$$\sqrt[64]{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}$$ is a transcendental number

Alternate forms:

$$\sqrt[64]{\frac{30\,(15\,744+5734\,\pi+191\,\pi^2+\pi^3)}{331\,776+357\,904\,\pi+26\,481\,\pi^2+354\,\pi^3+\pi^4}}$$

$$\sqrt[64]{\frac{472\,320+172\,020\,\pi+5730\,\pi^2+30\,\pi^3}{(1+\pi)\,(16+\pi)\,(81+\pi)\,(256+\pi)}}$$

Series representations:

$$\sqrt[64]{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}} =$$
$$\sqrt[64]{15}\left(\left(1968+2867\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+382\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+8\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3\right)\Big/\right.$$
$$\left(20\,736+89\,476\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}+26\,481\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^2+\right.$$
$$\left.\left.1416\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^3+16\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}\right)^4\right)\right)\text{^}(1/64)$$

$$\sqrt[64]{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}=$$

$$\sqrt[64]{30}\left(\left(15744+5734\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)+191\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3\right)\Big/\left(331776+357904\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)+26481\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^2+354\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^3+\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)\right)^4\right)\right)\text{^}(1/64)$$

$$\sqrt[64]{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}=$$

$$\sqrt[64]{30}\left(\left(15744+5734\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}+191\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^2+\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^3\right)\Big/\left(331776+357904\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}+26481\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^2+354\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^3+\left(\sum_{k=0}^{\infty}-\frac{4(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times239^{1+2k}\right)}{1+2k}\right)^4\right)\right)\text{^}(1/64)$$

2log base 0.9925366616(((1/(1+Pi) + 4/(16+Pi) + 9/(81+Pi) + 16/(256+Pi))))-Pi+1/golden ratio

Input interpretation:

$$2\log_{0.9925366616}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)-\pi+\frac{1}{\phi}$$

$\log_b(x)$ is the base-b logarithm

ϕ is the golden ratio

Result:

125.47644...

125.47644… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representation:

$$2\log_{0.992537}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)-\pi+\frac{1}{\phi}=-\pi+\frac{1}{\phi}+\frac{2\log\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)}{\log(0.992537)}$$

Series representations:

$$2\log_{0.992537}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)-\pi+\frac{1}{\phi}=\frac{1}{\phi}-\pi-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)^k}{k}}{\log(0.992537)}$$

$$2\log_{0.992537}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)-\pi+\frac{1}{\phi}=\frac{1}{\phi}-\pi-266.977\log\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)-2\log\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)\sum_{k=0}^{\infty}(-0.00746334)^k\,G(k)$$

$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}\,k}{2\,(1+k)\,(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

2log base 0.9925366616(((1/(1+Pi) + 4/(16+Pi) + 9/(81+Pi) + 16/(256+Pi))))+11+1/golden ratio

Where 11 is a Lucas number

Input interpretation:

$$2\log_{0.9925366616}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)+11+\frac{1}{\phi}$$

$\log_b(x)$ is the base-b logarithm

ϕ is the golden ratio

Result:

139.61803...

139.61803… result practically equal to the rest mass of Pion meson 139.57

Alternative representation:

$$2\log_{0.992537}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)+11+\frac{1}{\phi}=11+\frac{1}{\phi}+\frac{2\log\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)}{\log(0.992537)}$$

Series representations:

$$2\log_{0.992537}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)+11+\frac{1}{\phi}=11+\frac{1}{\phi}-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)^k}{k}}{\log(0.992537)}$$

$$2\log_{0.992537}\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)+11+\frac{1}{\phi}=11+\frac{1}{\phi}-266.977\log\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)-2\log\left(\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}\right)\sum_{k=0}^{\infty}(-0.00746334)^k\,G(k)$$

$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}\,k}{2\,(1+k)\,(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

1/ (((1/(1+Pi) + 4/(16+Pi) + 9/(81+Pi) + 16/(256+Pi))))+Pi/10^3

Input:

$$\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}+\frac{\pi}{10^3}$$

Decimal approximation:

1.6183193521790805043872452512565525432818001968234819378 23...

1.618319352179…. result that is a very good approximation to the value of the golden ratio 1,618033988749...

Property:

$$\frac{\pi}{1000}+\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}$$ is a transcendental number

Alternate forms:

$$\frac{33\,177\,600+35\,837\,632\,\pi+2\,665\,302\,\pi^2+35\,973\,\pi^3+103\,\pi^4}{3000\left(15\,744+5734\,\pi+191\,\pi^2+\pi^3\right)}$$

$$\frac{163}{30}+\frac{103\,\pi}{3000}+\frac{-372\,416-98\,747\,\pi-1731\,\pi^2}{5\left(15\,744+5734\,\pi+191\,\pi^2+\pi^3\right)}$$

$$\frac{163}{30}+\frac{103\,\pi}{3000}-\frac{372\,416+98\,747\,\pi+1731\,\pi^2}{5\left(15\,744+5734\,\pi+191\,\pi^2+\pi^3\right)}$$

Alternative representations:

$$\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}+\frac{\pi}{10^3}=\frac{\cos^{-1}(-1)}{10^3}+\frac{1}{\frac{1}{1+\cos^{-1}(-1)}+\frac{4}{16+\cos^{-1}(-1)}+\frac{9}{81+\cos^{-1}(-1)}+\frac{16}{256+\cos^{-1}(-1)}}$$

$$\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}+\frac{\pi}{10^3}=\frac{180^\circ}{10^3}+\frac{1}{\frac{1}{1+180^\circ}+\frac{4}{16+180^\circ}+\frac{9}{81+180^\circ}+\frac{16}{256+180^\circ}}$$

$$\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}+\frac{\pi}{10^3}=\frac{2\,E(0)}{10^3}+\frac{1}{\frac{1}{1+2\,E(0)}+\frac{4}{16+2\,E(0)}+\frac{9}{81+2\,E(0)}+\frac{16}{256+2\,E(0)}}$$

Series representations:

$$\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}+\frac{\pi}{10^3}=$$
$$\left(1\,036\,800+4\,479\,704\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}+1\,332\,651\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}\right)^2+\right.$$
$$\left.71\,946\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}\right)^3+824\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}\right)^4\right)\Big/$$
$$\left(750\left(1968+2867\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}+382\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}\right)^2+8\left(\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2\,k}\right)^3\right)\right)$$

$$\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}+\frac{\pi}{10^3}=$$
$$\left(33\,177\,600+35\,837\,632\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2\,k}+\frac{2}{1+4\,k}+\frac{1}{3+4\,k}\right)+\right.$$
$$2\,665\,302\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2\,k}+\frac{2}{1+4\,k}+\frac{1}{3+4\,k}\right)\right)^2+$$
$$35\,973\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2\,k}+\frac{2}{1+4\,k}+\frac{1}{3+4\,k}\right)\right)^3+$$
$$\left.103\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2\,k}+\frac{2}{1+4\,k}+\frac{1}{3+4\,k}\right)\right)^4\right)\Big/$$
$$\left(3000\left(15\,744+5734\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2\,k}+\frac{2}{1+4\,k}+\frac{1}{3+4\,k}\right)+\right.\right.$$
$$191\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2\,k}+\frac{2}{1+4\,k}+\frac{1}{3+4\,k}\right)\right)^2+$$
$$\left.\left.\left(\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2\,k}+\frac{2}{1+4\,k}+\frac{1}{3+4\,k}\right)\right)^3\right)\right)$$

$$\frac{1}{\frac{1}{1+\pi}+\frac{4}{16+\pi}+\frac{9}{81+\pi}+\frac{16}{256+\pi}}+\frac{\pi}{10^3}=$$
$$\left(33\,177\,600+35\,837\,632\times\sum_{k=0}^{\infty}16^{-k}\left(\frac{1}{-5-8k}-\frac{1}{2+4k}+\frac{4}{1+8k}-\frac{1}{6+8k}\right)+\right.$$
$$2\,665\,302\left(\sum_{k=0}^{\infty}16^{-k}\left(\frac{1}{-5-8k}-\frac{1}{2+4k}+\frac{4}{1+8k}-\frac{1}{6+8k}\right)\right)^2+$$
$$35\,973\left(\sum_{k=0}^{\infty}16^{-k}\left(\frac{1}{-5-8k}-\frac{1}{2+4k}+\frac{4}{1+8k}-\frac{1}{6+8k}\right)\right)^3+$$
$$\left.103\left(\sum_{k=0}^{\infty}16^{-k}\left(\frac{1}{-5-8k}-\frac{1}{2+4k}+\frac{4}{1+8k}-\frac{1}{6+8k}\right)\right)^4\right)\Big/$$
$$\left(3000\left(15\,744+5734\times\sum_{k=0}^{\infty}16^{-k}\left(\frac{1}{-5-8k}-\frac{1}{2+4k}+\frac{4}{1+8k}-\frac{1}{6+8k}\right)+\right.\right.$$
$$191\left(\sum_{k=0}^{\infty}16^{-k}\left(\frac{1}{-5-8k}-\frac{1}{2+4k}+\frac{4}{1+8k}-\frac{1}{6+8k}\right)\right)^2+$$
$$\left.\left.\left(\sum_{k=0}^{\infty}16^{-k}\left(\frac{1}{-5-8k}-\frac{1}{2+4k}+\frac{4}{1+8k}-\frac{1}{6+8k}\right)\right)^3\right)\right)$$

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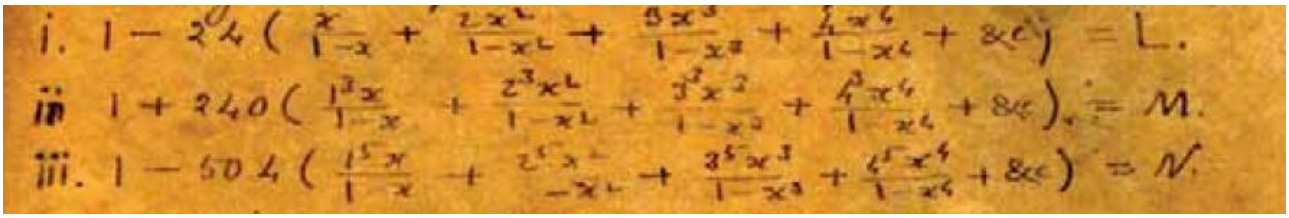


For x = 2, we obtain:

1-24(((2/(1-2)+2*4/(1-4)+3*8/(1-8)+4*16/(1-16)))

Input:

$$1-24\left(\frac{2}{1-2}+2\times\frac{4}{1-4}+3\times\frac{8}{1-8}+4\times\frac{16}{1-16}\right)$$

Exact result:

$$\frac{10\,419}{35}$$

Decimal approximation:

297.685714285714285714285714285714285714285714285714285142...

297.68571428…

1+240(((2/(1-2)+8*4/(1-4)+27*8/(1-8)+64*16/(1-16)))

Input:

$$1+240\left(\frac{2}{1-2}+8\times\frac{4}{1-4}+27\times\frac{8}{1-8}+64\times\frac{16}{1-16}\right)$$

Exact result:

$$-\frac{187801}{7}$$

Decimal approximation:

−26828.714285714285714285714285714285714285714285714285142...

-26828.7142857…

1-504(((2/(1-2)+32*4/(1-4)+243*8/(1-8)+1024*16/(1-16)))

Input:

$$1-504\left(\frac{2}{1-2}+32\times\frac{4}{1-4}+243\times\frac{8}{1-8}+1024\times\frac{16}{1-16}\right)$$

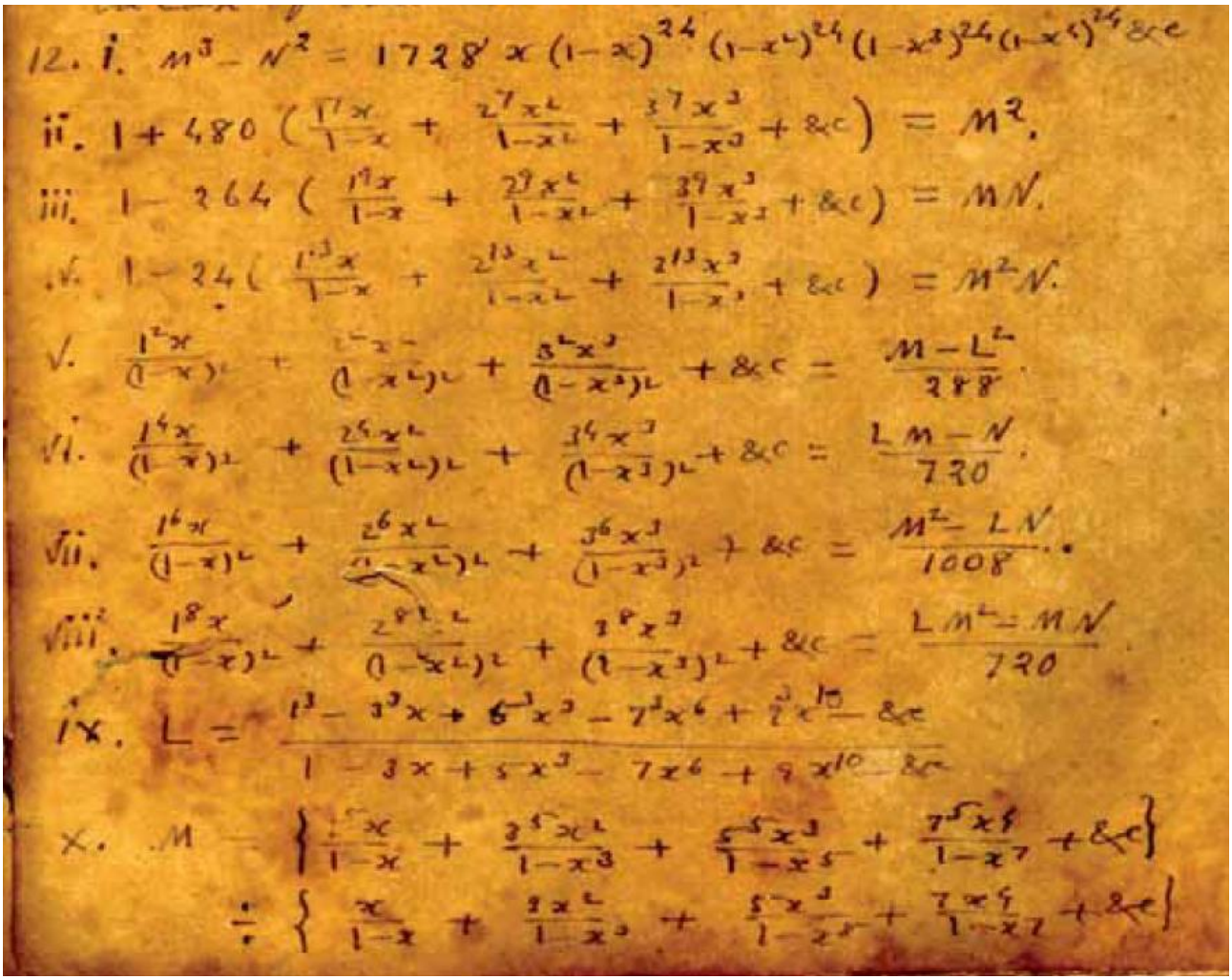
Exact result:

$$\frac{3564917}{5}$$

Decimal form:

712983.4

712983.4


12. i. $M^3 - N^2 = 1728 x (1-x)^{24} (1-x^2)^{24} (1-x^3)^{24} (1-x^4)^{24}$ &c
ii. $1 + 480 \left(\frac{1^7 x}{1-x} + \frac{2^7 x^2}{1-x^2} + \frac{3^7 x^3}{1-x^3} + \&c \right) = M^2.$
iii. $1 - 264 \left(\frac{1^9 x}{1-x} + \frac{2^9 x^2}{1-x^2} + \frac{3^9 x^3}{1-x^3} + \&c \right) = MN.$
iv. $1 - 24 \left(\frac{1^{13} x}{1-x} + \frac{2^{13} x^2}{1-x^2} + \frac{3^{13} x^3}{1-x^3} + \&c \right) = M^2 N.$
v. $\frac{1^2 x}{(1-x)^2} + \frac{2^2 x^2}{(1-x^2)^2} + \frac{3^2 x^3}{(1-x^3)^2} + \&c = \frac{M - L^2}{288}$
vi. $\frac{1^4 x}{(1-x)^2} + \frac{2^4 x^2}{(1-x^2)^2} + \frac{3^4 x^3}{(1-x^3)^2} + \&c = \frac{2M - N}{720}.$
vii. $\frac{1^6 x}{(1-x)^2} + \frac{2^6 x^2}{(1-x^2)^2} + \frac{3^6 x^3}{(1-x^3)^2} + \&c = \frac{M^2 - LN}{1008}.$
viii. $\frac{1^8 x}{(1-x)^2} + \frac{2^8 x^2}{(1-x^2)^2} + \frac{3^8 x^3}{(1-x^3)^2} + \&c = \frac{LM^2 - MN}{720}$
ix. $L = \frac{1^3 - 3^3 x + 5^3 x^2 - 7^3 x^6 + 9^3 x^{10} - \&c}{1 - 3x + 5x^3 - 7x^6 + 9x^{10} - \&c}$
x. $M = \left\{ \frac{1^5 x}{1-x} + \frac{3^5 x^2}{1-x^3} + \frac{5^5 x^3}{1-x^5} + \frac{7^5 x^4}{1-x^7} + \&c \right\}$
$\div \left\{ \frac{x}{1-x} + \frac{3x^2}{1-x^3} + \frac{5x^3}{1-x^5} + \frac{7x^4}{1-x^7} + \&c \right\}$

1728*2 * (1-2)^24*(1-4)^24*(1-8)^24*(1-16)^24

Input:

$1728 \times 2 (1-2)^{24} (1-4)^{24} (1-8)^{24} (1-16)^{24}$

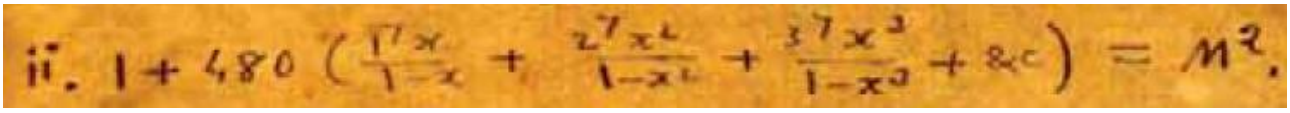
Result:

3 147 944 194 510 707 795 152 038 178 692 525 175 032 558 799 743 652 343 750 000 ∴ 000

Decimal approximation:

$3.147944194510707795152038178692525175032558799743652343750000... \times 10^{63}$

$3.147944194510….*10^{63}$



1+480(1^7*2/(1-2)+2^7*2^2/(1-2^2)+3^7*2^3/(1-2^3))

Input:

$$1+480\left(1^7\times\frac{2}{1-2}+2^7\times\frac{2^2}{1-2^2}+3^7\times\frac{2^3}{1-2^3}\right)$$

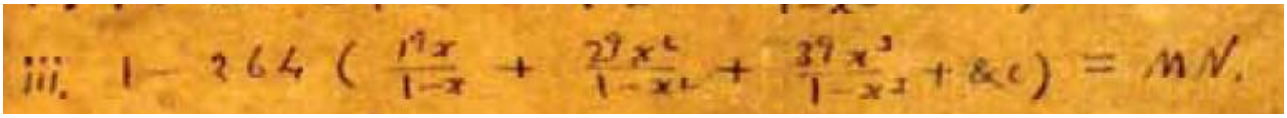
Exact result:

$$-\frac{8\,978\,233}{7}$$

Decimal approximation:

$-1.282604714285714285714285714285714285714285714285714285142\ldots\times10^6$

-1.2826047142857…..*10^6



1-264(1^9*2/(1-2)+2^9*2^2/(1-2^2)+3^9*2^3/(1-2^3))

Input:

$$1-264\left(1^9\times\frac{2}{1-2}+2^9\times\frac{2^2}{1-2^2}+3^9\times\frac{2^3}{1-2^3}\right)$$

Exact result:

$$\frac{42\,835\,767}{7}$$

Decimal approximation:

$6.119395285714285714285714285714285714285714285714

$$\frac{307\,945\,367}{7}$$

Decimal approximation:

$4.399219528571428571428571428571428571428571428571428571428571428571428571... \times 10^7$

$4.3992195285714285…*10^7$

From the sum of the three above results, we obtain:

(-1.2826047142857e+6 + 6.1193952857e+6 + 4.3992195285714285e+7)

Input interpretation:

$-1.2826047142857 \times 10^6 + 6.1193952857 \times 10^6 + 4.3992195285714285 \times 10^7$

Result:

$4.8828985857128585 \times 10^7$

$4.88289858571...*10^7$

And:

ln(-1.2826047142857e+6 + 6.1193952857e+6 + 4.3992195285714285e+7)

Input interpretation:

$\log\left(-1.2826047142857 \times 10^6 + 6.1193952857 \times 10^6 + 4.3992195285714285 \times 10^7\right)$

$\log(x)$ is the natural logarithm

Result:

17.70383466697...

17.70383466697.... result very near to the black hole entropy 17.7715

We have also:

ln(-1.2826047142857e+6 + 6.1193952857e+6 + 4.3992195285714285e+7)*8-2

where 8 and 2 are Fibonacci numbers

Input interpretation:

$$\log\left(-1.2826047142857\times 10^6+6.1193952857\times 10^6+4.3992195285714285\times 10^7\right)\times \frac{}{8-2}$$

log(x) is the natural logarithm

Result:

139.6306773358...

139.6306773358... result practically equal to the rest mass of Pion meson 139.57

We have also, dividing by 248 (the dimension of Lie Group E8) and subtracting 7, that is a Lucas number:

1/248(-1.2826047142857e+6 + 6.1193952857e+6 + 4.3992195285714e+7)-7

Input interpretation:

$$\frac{1}{248}\left(-1.2826047142857\times 10^6+6.1193952857\times 10^6+4.3992195285714\times 10^7\right)-7$$

Result:

196884.072004549596774193548387096774193548387096774193548 3...

196884.0720045....

196884 is a fundamental number of the following *j*-invariant

$$j(\tau)=q^{-1}+744+196884q+21493760q^2+864299970q^3+20245856256q^4+\cdots$$

(In mathematics, Felix Klein's *j*-invariant or *j* function, regarded as a function of a complex variable τ, is a modular function of weight zero for SL(2, Z) defined on the upper half plane of complex numbers. Several remarkable properties of *j* have to do with its *q* expansion (Fourier series expansion), written as a Laurent series in terms of $q = e^{2\pi i\tau}$ (the square of the nome), which begins:

$$j(\tau)=q^{-1}+744+196884q+21493760q^2+864299970q^3+20245856256q^4+\cdots$$

Note that *j* has a simple pole at the cusp, so its *q*-expansion has no terms below q^{-1}.

All the Fourier coefficients are integers, which results in several almost integers, notably Ramanujan's constant:

$$e^{\pi\sqrt{163}}\approx 640320^3+744.$$

The asymptotic formula for the coefficient of q^n is given by

$$\frac{e^{4\pi\sqrt{n}}}{\sqrt{2}\,n^{3/4}},$$

as can be proved by the Hardy–Littlewood circle method)

and we obtain also:

sqrt(((1/248(-1.2826047e+6 + 6.1193952e+6 + 4.3992195e+7)-7)))*1/3-8-1/golden ratio

Input interpretation:

$$\sqrt{\frac{1}{248}\left(-1.2826047\times10^6+6.1193952\times10^6+4.3992195\times10^7\right)-7}\times\frac{1}{3}-8-\frac{1}{\phi}$$

ϕ is the golden ratio

Result:

139.28737...

139.28737… result practically equal to the rest mass of Pion meson 139.57

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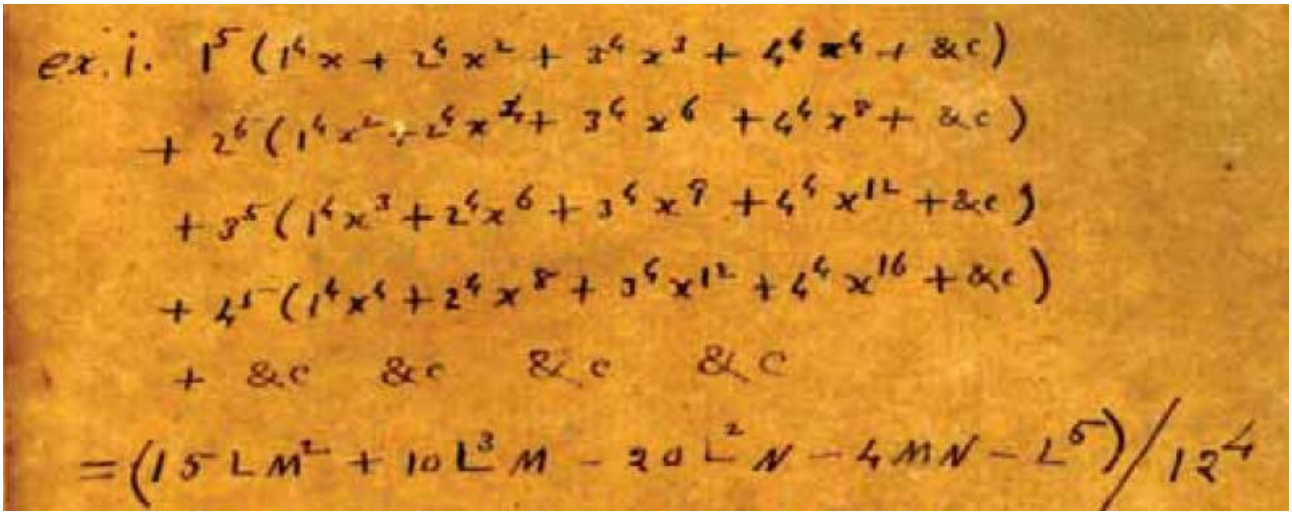


For 297.68571428 = L; 712983.4 = N; -26828.7142857 = M

We obtain:

(((15*297.68571428*(-26828.7142857)^2+10*297.68571428^3*(-26828.7142857)-20*297.68571428^2*712983.4-4*(-26828.7142857)*712983.4-297.68571428^5)))/12^4

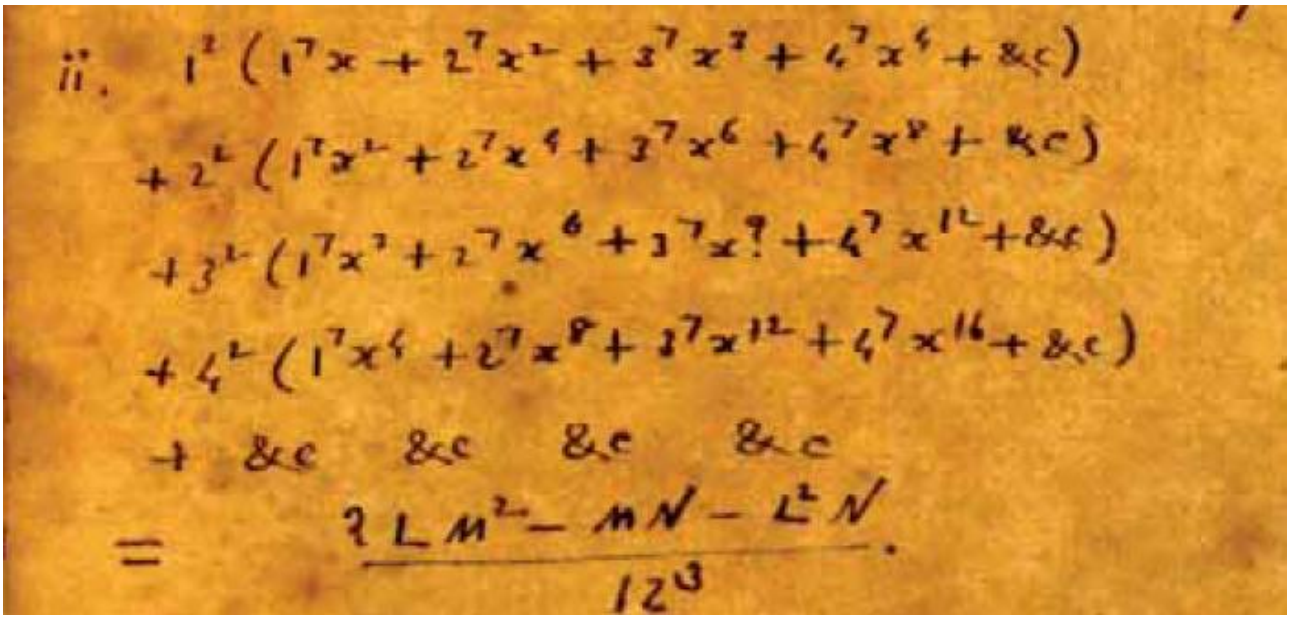
Input interpretation:

$$\frac{1}{12^4}(15\times 297.68571428\,(-26\,828.7142857)^2 + 10\times 297.68571428^3\times(-26\,828.7142857) + 20\times 297.68571428^2\times(-712\,983.4) + 4\times(-26\,828.7142857)\times(-712\,983.4) - 297.68571428^5)$$

Result:

$$-3.562990597421525928430536473861115504313587783015160 4\ldots\times 10^8$$

-3.5629905974215...*10^8



297.68571428 = L; -1.2826047142857e+6 = M^2;

712983.4 = N; -26828.7142857 = M

We have that:

((((2*297.68571428 * -26828.7142857^2) – (712983.4* -26828.7142857) – (297.68571428^2*712983.4)))) / 12^3

Input interpretation:

$$\frac{1}{12^3}(2\times 26\,828.7142857^2\times(-297.68571428)-712\,983.4\times(-26\,828.7142857)-297.68571428^2\times 712\,983.4)$$

Result:

$-2.7348973482049537743641991939666342592592592592592\ldots\times 10^8$

-2.7348973482...*10^8

Or:

6.1193952857….*10^6 = MN; -1.2826047142857e+6 = M^2

((((2*297.68571428*-1.2826047142857e+6) – (6.1193952857e+6) – (297.68571428^2*712983.4)))) / 12^3

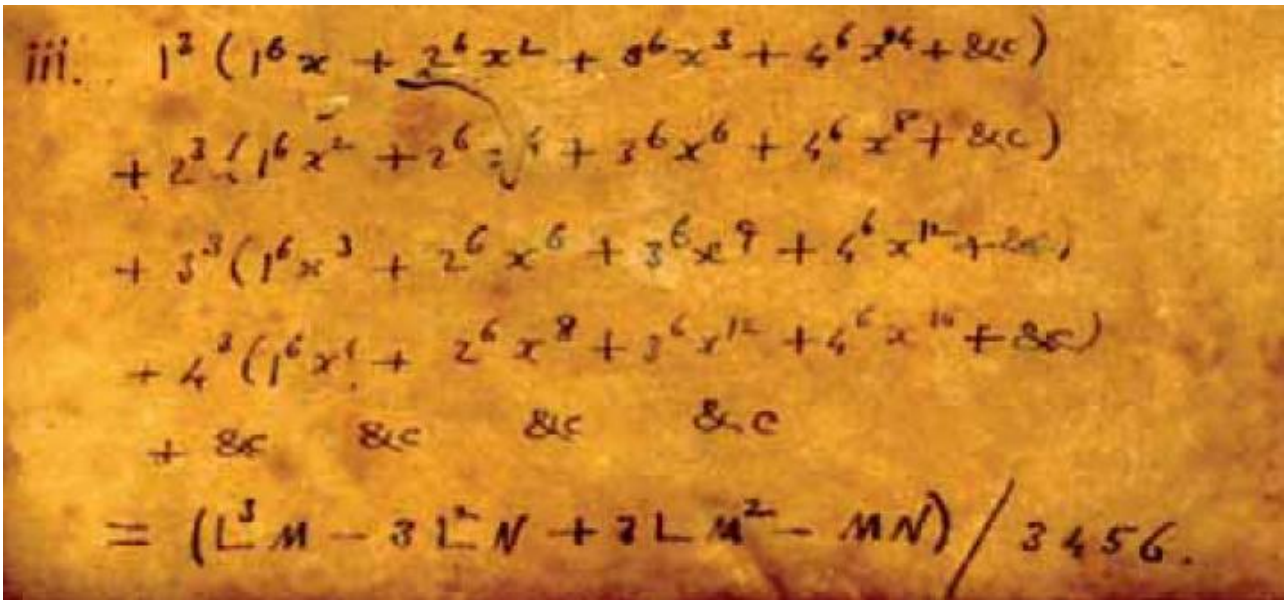
Input interpretation:

$$\frac{1}{12^3}\left(2\times 297.68571428\left(-1.2826047142857\times 10^6\right)-6.1193952857\times 10^6-297.68571428^2\times 712\,983.4\right)$$

Result:

$-3.700928350490976284825610333333333333333333333333333\ldots\times 10^7$

-3.700928350490976....*10^7



For 297.68571428 = L; 712983.4 = N; -26828.7142857 = M

We obtain:

(((297.68571428^3*(-26828.7142857)-
3*297.68571428^2*712983.4+3*297.68571428*(-26828.7142857^2)-(-
26828.7142857)*712983.4)))/3456

Input interpretation:

$$\frac{1}{3456}(297.68571428^3 \times (-26\,828.7142857) + 3 \times 297.68571428^2 \times (-712\,983.4) + 3 \times 297.68571428\,(-26\,828.7142857^2) - 26\,828.7142857 \times (-712\,983.4))$$

Result:

$$-4.400935224553063570816932734437892115881 5 \times 10^8$$

-4.40093522455306...*10^8

For the sum of the three results

-356299059.74215259284305364738611155043135877830151604

-273489734.82049537743641991939666342592592592592592592

-440093522.455306357081693273443789211588 15

We obtain:

(-356299059.742152592 -273489734.820495377 -440093522.455306357)

Input interpretation:

$$-3.56299059742152592 \times 10^8 - 2.73489734820495377 \times 10^8 - 4.40093522455306357 \times 10^8$$

Result:

$$-1.069882317017954326 \times 10^9$$

-1069882317.017954326

And:

ln-(-356299059.742152592 -273489734.820495377 -440093522.455306357)

Input interpretation:

$$\log(-(-3.56299059742152592\times10^{8}-2.73489734820495377\times10^{8}-4.40093522455306357\times10^{8}))$$

$\log(x)$ is the natural logarithm

Result:

20.790814495279616204...

20.790814495…..result very near to the black hole entropy 20.5520

Alternative representations:

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=\log_e(1.069882317017954326000\times10^{\circ})$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=\log(a)\log_a(1.069882317017954326000\times10^{\circ})$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=-\mathrm{Li}_1(-1.069882316017954326000\times10^{\circ})$$

Series representations:

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=\log(1.069882316017954326000\times10^{\circ})-\sum_{k=1}^{\infty}\frac{(-1)^k\,e^{-20.790814494341479804787\,k}}{k}$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=2\,i\,\pi\left\lfloor\frac{\arg(1.069882317017954326000\times10^{\circ}-x)}{2\,\pi}\right\rfloor+\log(x)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.069882317017954326000\times10^{\circ}-x)^k\,x^{-k}}{k}\quad\text{for } x<0$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=\left\lfloor\frac{\arg(1.069882317017954326000\times10^{9}-z_0)}{2\pi}\right\rfloor\log\left(\frac{1}{z_0}\right)+\log(z_0)+\left\lfloor\frac{\arg(1.069882317017954326000\times10^{9}-z_0)}{2\pi}\right\rfloor\log(z_0)-\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.069882317017954326000\times10^{9}-z_0)^k\,z_0^{-k}}{k}$$

Integral representations:

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=\int_1^{1.069882317017954326000\times10^{9}}\frac{1}{t}\,dt$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))=\frac{1}{2i\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-20.790814494341479804787\,s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds\quad\text{for}\quad-1<\gamma<0$$

We have also:

ln-(-356299059.742152592 -273489734.820495377 -440093522.455306357)*2Pi+11-2

where 11 and 2 are Lucas numbers

Input interpretation:

$$\log(-(-3.56299059742152592\times10^{8}-2.73489734820495377\times10^{8}-4.40093522455306357\times10^{8}))\times2\pi+11-2$$

$\log(x)$ is the natural logarithm

Result:

139.6325401610155514...

139.632540… result practically equal to the rest mass of Pion meson 139.57

Alternative representations:

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9+2\pi\log_e(1.069882317017954326000\times10^{9})$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9+2\pi\log(a)\log_a(1.069882317017954326000\times10^{9})$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9-2\pi\,\mathrm{Li}_1(-1.069882316017954326000\times10^{9})$$

Series representations:

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9+2\pi\log(1.069882316017954326000\times10^{9})-2\pi\sum_{k=1}^{\infty}\frac{(-1)^k\,e^{-20.790814494341479804787\,k}}{k}$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9+4\,i\,\pi^2\left\lfloor\frac{\arg(1.069882317017954326000\times10^{9}-x)}{2\pi}\right\rfloor+2\pi\log(x)-2\pi\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.069882317017954326000\times10^{9}-x)^k\,x^{-k}}{k}\quad\text{for } x<0$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9+4\,i\,\pi^2\left\lfloor-\frac{-\pi+\arg\left(\frac{1.069882317017954326000\times10^{9}}{z_0}\right)+\arg(z_0)}{2\pi}\right\rfloor+2\pi\log(z_0)-2\pi\sum_{k=1}^{\infty}\frac{(-1)^k\,(1.069882317017954326000\times10^{9}-z_0)^k\,z_0^{-k}}{k}$$

Integral representations:

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9+2\pi\int_1^{1.069882317017954326000\times10^{9}}\frac{1}{t}\,dt$$

$$\log(-(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}))\,2\pi+11-2=9+\frac{1}{i}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{-20.790814494341479804787s}\,\Gamma(-s)^2\,\Gamma(1+s)}{\Gamma(1-s)}\,ds \quad \text{for} \quad -1<\gamma<0$$

From the formula of the coefficients of the "5th order" mock theta function $\psi_1(q)$

a(n) ~ sqrt(phi) * exp(Pi*sqrt(n/15)) / (2*5^(1/4)*sqrt(n))

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{n}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{n}}$$

ϕ is the golden ratio

we obtain, for n = 109.3 the following result:

sqrt(golden ratio) * exp(Pi*sqrt(109.3/15)) / (2*5^(1/4)*sqrt(109.3))

Input:

$$\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{109.3}}$$

ϕ is the golden ratio

Result:

196.058...

196.058…

Series representations:

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{109.3}} = \frac{\exp\left(\pi\sqrt{z_0}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (7.28667-z_0)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (\phi-z_0)^k z_0^{-k}}{k!}}{2\sqrt[4]{5}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k (109.3-z_0)^k z_0^{-k}}{k!}}$$

for not $((z_0 \in \mathbb{R} \text{ and } -\infty < z_0 \le 0))$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{109.3}} = \left(\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\right.$$
$$\left.\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(7.28667-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k\,(7.28667-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right.$$
$$\left.\sum_{k=0}^{\infty}\frac{(-1)^k\,(\phi-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/$$
$$\left(2\sqrt[4]{5}\ \exp\left(i\pi\left\lfloor\frac{\arg(109.3-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k\,(109.3-x)^k\,x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)$$

for $(x \in \mathbb{R} \text{ and } x < 0)$

$$\frac{\sqrt{\phi}\ \exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\ \sqrt{109.3}} = \left(\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\,[\arg(7.28667-z_0)/(2\pi)]}\right.\right.$$
$$\left.z_0^{1/2\,(1+[\arg(7.28667-z_0)/(2\pi)])}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\,(7.28667-z_0)^k\,z_0^{-k}}{k!}\right)$$
$$\left(\frac{1}{z_0}\right)^{-1/2\,[\arg(109.3-z_0)/(2\pi)]+1/2\,[\arg(\phi-z_0)/(2\pi)]}$$
$$\left.z_0^{-1/2\,[\arg(109.3-z_0)/(2\pi)]+1/2\,[\arg(\phi-z_0)/(2\pi)]}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\,(\phi-z_0)^k\,z_0^{-k}}{k!}\right)\Big/$$
$$\left(2\sqrt[4]{5}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\,(109.3-z_0)^k\,z_0^{-k}}{k!}\right)$$

and, with the previous expression, we obtain the following interesting equation:

-1/(1728Pi) (-356299059.742152592 -273489734.820495377 -440093522.455306357) - (((sqrt(golden ratio) * exp(Pi*sqrt(109.3/15)) / (2*5^(1/4)*sqrt(109.3))

Input interpretation:

$$-\frac{1}{1728\,\pi}\left(-3.5629905974215259\times10^{8}-2.7348973482049537\times10^{8}-4.4009352245530636\times10^{8}\right)-\sqrt{\phi}\times\frac{\exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{109.3}}$$

ϕ is the golden ratio

Result:

196883.87...

196883.87….

196884 is a fundamental number of the following *j*-invariant

$$j(\tau)=q^{-1}+744+196884q+21493760q^{2}+864299970q^{3}+20245856256q^{4}+\cdots$$

(In mathematics, Felix Klein's *j*-invariant or *j* function, regarded as a function of a complex variable τ, is a modular function of weight zero for SL(2, Z) defined on the upper half plane of complex numbers. Several remarkable properties of *j* have to do with its *q* expansion (Fourier series expansion), written as a Laurent series in terms of $q = e^{2\pi i\tau}$ (the square of the nome), which begins:

$$j(\tau)=q^{-1}+744+196884q+21493760q^{2}+864299970q^{3}+20245856256q^{4}+\cdots$$

Note that *j* has a simple pole at the cusp, so its *q*-expansion has no terms below q^{-1}.

All the Fourier coefficients are integers, which results in several almost integers, notably Ramanujan's constant:

$$e^{\pi\sqrt{163}}\approx 640320^{3}+744.$$

The asymptotic formula for the coefficient of q^n is given by

$$\frac{e^{4\pi\sqrt{n}}}{\sqrt{2}\,n^{3/4}},$$

as can be proved by the Hardy–Littlewood circle method)

Series representations:

$$\frac{1}{1728\,\pi}(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8})(-1)-\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{109.3}}=$$

$$-\left(\left(0.100000000000000000000\left(-6.191448593853902349\times10^{6}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(109.3-z_0)^k z_0^{-k}}{k!}+3.343701524882110120\right.\right.\right.$$

$$\left.\left.\left.\pi\exp\left(\pi\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(7.28667-z_0)^k z_0^{-k}}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k z_0^{-k}}{k!}\right)\right)\Big/$$

$$\left(\pi\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(109.3-z_0)^k z_0^{-k}}{k!}\right)\right)$$

for not $((z_0\in\mathbb{R}$ and $-\infty<z_0\le0))$

$$\frac{1}{1728\,\pi}(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8})(-1)-\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{109.3}}=-\left(\left(0.100000000000000000000\left(-6.191448593853902349\times10^{6}\exp\left(i\pi\left\lfloor\frac{\arg(109.3-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(109.3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}+3.343701524882110120\right.\right.\right.$$

$$\left.\left.\left.\pi\exp\left(i\pi\left\lfloor\frac{\arg(\phi-x)}{2\pi}\right\rfloor\right)\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(7.28667-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(7.28667-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\sum_{k=0}^{\infty}\frac{(-1)^k(\phi-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)\Big/$$

$$\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(109.3-x)}{2\pi}\right\rfloor\right)\sum_{k=0}^{\infty}\frac{(-1)^k(109.3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)$$ for $(x\in\mathbb{R}$ and $x<0)$

$$\frac{1}{1728\,\pi}\left(-3.562990597421525920000\times10^{8}-2.734897348204953770000\times10^{8}-4.400935224553063570000\times10^{8}\right)(-1)-\frac{\sqrt{\phi}\,\exp\left(\pi\sqrt{\frac{109.3}{15}}\right)}{2\sqrt[4]{5}\,\sqrt{109.3}}=$$

$$-\left(\left(\left(0.100000000000000000000\left(\frac{1}{z_0}\right)^{-1/2\,[\arg(109.3-z_0)/(2\pi)]}z_0^{-1/2\,[\arg(109.3-z_0)/(2\pi)]}\left(-6.191448593853902349\times10^{6}\left(\frac{1}{z_0}\right)^{1/2\,[\arg(109.3-z_0)/(2\pi)]}z_0^{1/2\,[\arg(109.3-z_0)/(2\pi)]}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(109.3-z_0)^k\,z_0^{-k}}{k!}+3.343701524882110120\,\pi\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\,[\arg(7.28667-z_0)/(2\pi)]}z_0^{1/2\,(1+[\arg(7.28667-z_0)/(2\pi)])}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(7.28667-z_0)^k\,z_0^{-k}}{k!}\right)\left(\frac{1}{z_0}\right)^{1/2\,[\arg(\phi-z_0)/(2\pi)]}z_0^{1/2\,[\arg(\phi-z_0)/(2\pi)]}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(\phi-z_0)^k\,z_0^{-k}}{k!}\right)\Big/\left(\pi\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(109.3-z_0)^k\,z_0^{-k}}{k!}\right)\right)\right)$$

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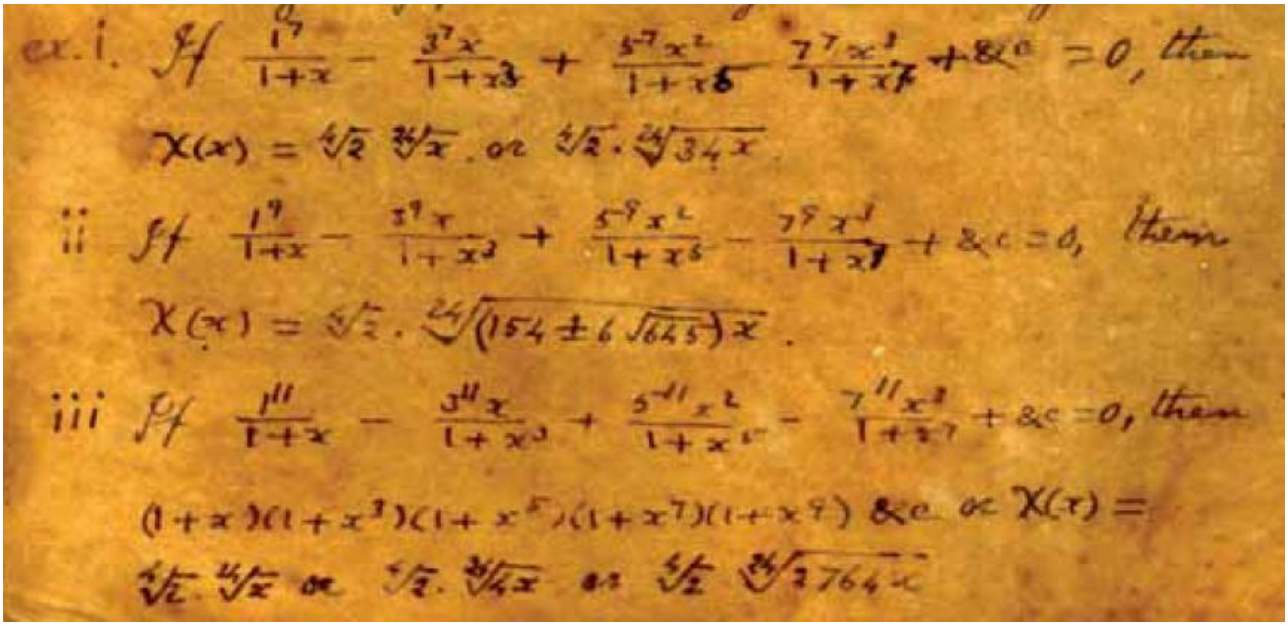

For x = 2, we obtain:

(2)^1/4 * (2)^1/24

Input:

$\sqrt[4]{2}\ \sqrt[24]{2}$

Result:

$2^{7/24}$

Decimal approximation:

1.22405354330465523913216021682603882238745657268392180776 9...

1.2240535433….

(2)^1/4 * (34*2)^1/24

Input:

$\sqrt[4]{2}\ \sqrt[24]{34\times 2}$

Result:

$\sqrt[3]{2}\ \sqrt[24]{17}$

Decimal approximation:

1.41779041818582687258057657751325681240622705723367569024 6...

1.4177904181858…..

(2)^1/4 * (((154+6*sqrt645)*2))^1/24

Input:

$\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)\times 2}$

Exact result:

$2^{7/24}\ \sqrt[24]{154+6\sqrt{645}}$

Decimal approximation:

1.55379837983256784928259783405869110926669923235345241211 1...

1.55379837983256…..

Alternate form:

$\sqrt[3]{2}\ \sqrt[24]{77+3\sqrt{645}}$

Minimal polynomial:

$x^{48}-39\,424\,x^{24}+8\,126\,464$

(2)^1/4 * (((154-6*sqrt645)*2))^1/24

Input:

$\sqrt[4]{2}\ \sqrt[24]{\left(154-6\sqrt{645}\right)\times 2}$

Exact result:

$2^{7/24}\ \sqrt[24]{154-6\sqrt{645}}$

Decimal approximation:

1.248871926166649760260623186603230360634938018543309807283...

1.24887192616664976…..

Alternate form:

$\sqrt[3]{2}\ \sqrt[24]{77-3\sqrt{645}}$

Minimal polynomial:

$x^{48}-39\,424\,x^{24}+8\,126\,464$

(2)^1/4 * (4*2)^1/24

Input:

$\sqrt[4]{2}\ \sqrt[24]{4\times 2}$

Result:

$2^{3/8}$

Decimal approximation:

1.296839554651009665933754117792451159835345149424965512807...

1.296839554651.....

(2)^1/4 * (2764*2)^1/24

Input:

$$\sqrt[4]{2}\ \sqrt[24]{2764\times 2}$$

Result:

$$2^{3/8}\ \sqrt[24]{691}$$

Decimal approximation:

1.702934067394305862706536481195677787140783359413309374154...

1.7029340673943….

From the sum and the difference of the various expressions, we obtain:

(2)^1/4 * (2)^1/24 + (2)^1/4 * (34*2)^1/24 + (2)^1/4 * (((154+6*sqrt645)*2))^1/24 + (2)^1/4 * (4*2)^1/24 + (2)^1/4 * (2764*2)^1/24

Input:

$$\sqrt[4]{2}\ \sqrt[24]{2} + \sqrt[4]{2}\ \sqrt[24]{34\times 2} + \sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)\times 2} + \sqrt[4]{2}\ \sqrt[24]{4\times 2} + \sqrt[4]{2}\ \sqrt[24]{2764\times 2}$$

Exact result:

$$2^{7/24}+2^{3/8}+\sqrt[3]{2}\ \sqrt[24]{17}+2^{3/8}\ \sqrt[24]{691}+2^{7/24}\ \sqrt[24]{154+6\sqrt{645}}$$

Decimal approximation:

7.195415963368365489635625227386115691036511371109324797088...

7.195415963368…

Alternate forms:

$$2^{7/24}\left(1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\ \sqrt[24]{691}+\sqrt[24]{154+6\sqrt{645}}\right)$$

$$2^{7/24}\left(1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\ \sqrt[24]{691}+\sqrt[24]{2\left(77+3\sqrt{645}\right)}\right)$$

(2)^1/4 * (2)^1/24 - (2)^1/4 * (34*2)^1/24 - (2)^1/4 * (((154+6*sqrt645)*2))^1/24 - (2)^1/4 * (4*2)^1/24 - (2)^1/4 * (2764*2)^1/24

Input:

$$\sqrt[4]{2}\,\sqrt[24]{2} - \sqrt[4]{2}\,\sqrt[24]{34\times 2} - \sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)\times 2} - \sqrt[4]{2}\,\sqrt[24]{4\times 2} - \sqrt[4]{2}\,\sqrt[24]{2764\times 2}$$

Exact result:

$$2^{7/24} - 2^{3/8} - \sqrt[3]{2}\,\sqrt[24]{17} - 2^{3/8}\,\sqrt[24]{691} - 2^{7/24}\,\sqrt[24]{154+6\sqrt{645}}$$

Decimal approximation:

−4.747308876759055011371304793734038046261598225741481181 54...

-4.747308876759055….

Alternate forms:

$$-2^{7/24}\left(-1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\,\sqrt[24]{691}+\sqrt[24]{154+6\sqrt{645}}\right)$$

$$-2^{7/24}\left(-1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\,\sqrt[24]{691}+\sqrt[24]{2\left(77+3\sqrt{645}\right)}\right)$$

(2)^1/4 * (2)^1/24 + (2)^1/4 * (34*2)^1/24 + (2)^1/4 * (((154-6*sqrt645)*2))^1/24 + (2)^1/4 * (4*2)^1/24 + (2)^1/4 * (2764*2)^1/24

Input:

$$\sqrt[4]{2}\,\sqrt[24]{2} + \sqrt[4]{2}\,\sqrt[24]{34\times 2} + \sqrt[4]{2}\,\sqrt[24]{\left(154-6\sqrt{645}\right)\times 2} + \sqrt[4]{2}\,\sqrt[24]{4\times 2} + \sqrt[4]{2}\,\sqrt[24]{2764\times 2}$$

Exact result:

$$2^{7/24} + 2^{3/8} + \sqrt[3]{2}\,\sqrt[24]{17} + 2^{3/8}\,\sqrt[24]{691} + 2^{7/24}\,\sqrt[24]{154-6\sqrt{645}}$$

Decimal approximation:

6.890489509702447400613650579930654942404750157299182192260...

6.8904895097024474…..

Alternate forms:

$$2^{7/24}\left(1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\,\sqrt[24]{691}+\sqrt[24]{154-6\sqrt{645}}\right)$$

$$2^{7/24}\left(1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\,\sqrt[24]{691}+\sqrt[24]{2\left(77-3\sqrt{645}\right)}\right)$$

(2)^1/4 * (2)^1/24 - (2)^1/4 * (34*2)^1/24 - (2)^1/4 * (((154-6*sqrt645)*2))^1/24 - (2)^1/4 * (4*2)^1/24 - (2)^1/4 * (2764*2)^1/24

Input:

$$\sqrt[4]{2}\,\sqrt[24]{2}-\sqrt[4]{2}\,\sqrt[24]{34\times 2}-\sqrt[4]{2}\,\sqrt[24]{\left(154-6\sqrt{645}\right)\times 2}-\sqrt[4]{2}\,\sqrt[24]{4\times 2}-\sqrt[4]{2}\,\sqrt[24]{2764\times 2}$$

Exact result:

$$2^{7/24}-2^{3/8}-\sqrt[3]{2}\,\sqrt[24]{17}-2^{3/8}\,\sqrt[24]{691}-2^{7/24}\,\sqrt[24]{154-6\sqrt{645}}$$

Decimal approximation:

−4.442382423093136922349330146278577297629837011931338576 72...

-4.4423824230931….

Alternate forms:

$$-2^{7/24}\left(-1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\,\sqrt[24]{691}+\sqrt[24]{154-6\sqrt{645}}\right)$$

$$-2^{7/24}\left(-1+\sqrt[12]{2}+\sqrt[24]{34}+\sqrt[12]{2}\,\sqrt[24]{691}+\sqrt[24]{2\left(77-3\sqrt{645}\right)}\right)$$

From the product and the division, we obtain:

(((2)^1/4 * (2)^1/24)) * (((2)^1/4 * (34*2)^1/24)) * (((2)^1/4 * (((154+6*sqrt645)*2))^1/24)) * (((2)^1/4 * (4*2)^1/24)) * (((2)^1/4 * (2764*2)^1/24))

Input:

$$\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)$$

Exact result:

$$2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}$$

Decimal approximation:

5.955129343663127583910514960104337690361486792157509162239...

5.9551293436631….

Alternate form:

$$2\times 2^{17/24}\sqrt[24]{11\,747\left(77+3\sqrt{645}\right)}$$

Minimal polynomial:

$$x^{48}-3\,978\,116\,632\,177\,278\,976\,x^{24}+82\,743\,762\,879\,974\,765\,661\,427\,736\,630\,001\,664$$

(((2)^1/4 * (2)^1/24)) * (((2)^1/4 * (34*2)^1/24)) * (((2)^1/4 * (((154-6*sqrt645)*2))^1/24)) * (((2)^1/4 * (4*2)^1/24)) * (((2)^1/4 * (2764*2)^1/24))

Input:

$$\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154-6\sqrt{645}\right)\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)$$

Exact result:

$$2\times 2^{2/3}\sqrt[24]{11\,747\left(154-6\sqrt{645}\right)}$$

Decimal approximation:

4.786460039167703480953084500213061264401073542119658838964...

4.7864600391677….

Alternate form:

$$2\times 2^{17/24}\sqrt[24]{11\,747\left(77-3\sqrt{645}\right)}$$

Minimal polynomial:

$x^{48} - 3\,978\,116\,632\,177\,278\,976\,x^{24} + 82\,743\,762\,879\,974\,765\,661\,427\,736\,630\,001\,664$

1/(((2)^1/4 * (2)^1/24)) * 1/(((2)^1/4 * (34*2)^1/24)) * 1/ (((2)^1/4 * (((154+6*sqrt645)*2))^1/24)) * 1/(((2)^1/4 * (4*2)^1/24)) * 1/(((2)^1/4 * (2764*2)^1/24))

Input:

$$\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{34\times 2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)\times 2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{4\times 2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{2764\times 2}}$$

Exact result:

$$\frac{1}{2\times 2^{2/3}\,\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}$$

Decimal approximation:

0.167922465204572464542118064342010499761419509876299815233...

0.167922465204572…

Alternate forms:

$$\frac{1}{2\times 2^{17/24}\,\sqrt[24]{11\,747\left(77+3\sqrt{645}\right)}}$$

$$\frac{\sqrt[24]{\frac{77-3\sqrt{645}}{364\,157}}}{2\times 2^{19/24}}$$

Minimal polynomial:

$82\,743\,762\,879\,974\,765\,661\,427\,736\,630\,001\,664\,x^{48} - 3\,978\,116\,632\,177\,278\,976\,x^{24} + 1$

1/(((2)^1/4 * (2)^1/24)) * 1/(((2)^1/4 * (34*2)^1/24)) * 1/ (((2)^1/4 * (((154-6*sqrt645)*2))^1/24)) * 1/(((2)^1/4 * (4*2)^1/24)) * 1/(((2)^1/4 * (2764*2)^1/24))

Input:

$$\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{34\times 2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{\left(154-6\sqrt{645}\right)\times 2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{4\times 2}} \times \frac{1}{\sqrt[4]{2}\,\sqrt[24]{2764\times 2}}$$

Exact result:

$$\frac{1}{2\times 2^{2/3}\,\sqrt[24]{11\,747\left(154-6\sqrt{645}\right)}}$$

Decimal approximation:

0.208922667653543308185236558412405147354168704321026971710…

0.2089226676535433…

Alternate forms:

$$\sqrt[24]{\frac{77}{3\,203\,158\,846\,688\,198\,656}+\frac{3\sqrt{645}}{3\,203\,158\,846\,688\,198\,656}}$$

$$\frac{1}{2\times 2^{17/24}\,\sqrt[24]{11\,747\left(77-3\sqrt{645}\right)}}$$

Minimal polynomial:

$$82\,743\,762\,879\,974\,765\,661\,427\,736\,630\,001\,664\,x^{48}-3\,978\,116\,632\,177\,278\,976\,x^{24}+1$$

Now, we obtain also:

(987-18)*colog(((((1/(((2)^1/4 * (2)^1/24)) * 1/(((2)^1/4 * (34*2)^1/24)) * 1/(((2)^1/4 * (((154+6*sqrt645)*2))^1/24)) * 1/(((2)^1/4 * (4*2)^1/24)) * 1/(((2)^1/4 * (2764*2)^1/24)))))))

Where 987 is a Fibonacci number and 18 is a Lucas number

Input:

$$(987-18)\left(-\log\left(\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{34\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{4\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2764\times 2}}\right)\right)$$

$\log(x)$ is the natural logarithm

Exact result:

$$-969\log\left(\frac{1}{2\times 2^{2/3}\,\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)$$

Decimal approximation:

1728.941082144663417169561966684201877211254848111879753949...

1728.94108214….

This result is very near to the mass of candidate glueball $f_0(1710)$ meson. Furthermore, 1728 occurs in the algebraic formula for the j-invariant of an elliptic curve. As a consequence, it is sometimes called a Zagier as a pun on the Gross–Zagier theorem. The number 1728 is one less than the Hardy–Ramanujan number 1729

Property:

$$-969\log\left(\frac{1}{2\times 2^{2/3}\,\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)$$ is a transcendental number

Alternate forms:

$$\frac{323}{8}\left(41\log(2)+\log\left(11\,747\left(77+3\sqrt{645}\right)\right)\right)$$

$$\frac{13\,243\log(2)}{8}+\frac{323}{8}\log\left(11\,747\left(77+3\sqrt{645}\right)\right)$$

$$\frac{323}{8}\left(41\log(2)+\log(17)+\log(691)+\log\left(77+3\sqrt{645}\right)\right)$$

Alternative representations:

$$(987-18)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=-969$$

$$\log_e\left(\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

$$(987-18)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=-969\log(a)$$

$$\log_a\left(\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

$$(987-18)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=969\,\mathrm{Li}_1\left(1-\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

Series representations:

$$(987-18)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=$$

$$969\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}\right)^k}{k}$$

$$(987-18)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=$$

$$969\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{17/24}\sqrt[24]{11747\left(77+3\sqrt{645}\right)}}\right)^k}{k}$$

$$(987-18)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=$$

$$-1938\,i\,\pi\left\lfloor\frac{\arg\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}-x\right)}{2\pi}\right\rfloor-969\log(x)+969\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}-x\right)^k x^{-k}}{k}\quad\text{for } x<0$$

Integral representation:

$$(987-18)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=$$

$$-969\int_1^{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\frac{1}{t}\,dt$$

We have also that:

1/13* (987-18)*colog(((((1/(((2)^1/4 * (2)^1/24)) *1/(((2)^1/4 * (34*2)^1/24)) *1/(((2)^1/4 *(((154+6*sqrt645)*2))^1/24)) * 1/(((2)^1/4 * (4*2)^1/24))* 1/(((2)^1/4*(2764*2)^1/24)))))))+2Pi

Input:

$$\frac{1}{13}(987-18)\left(-\log\left(\frac{1}{\sqrt[4]{2}\ \sqrt[24]{2}}\times\frac{1}{\sqrt[4]{2}\ \sqrt[24]{34\times 2}}\times\frac{1}{\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)\times 2}}\times\frac{1}{\sqrt[4]{2}\ \sqrt[24]{4\times 2}}\times\frac{1}{\sqrt[4]{2}\ \sqrt[24]{2764\times 2}}\right)\right)+2\pi$$

$\log(x)$ is the natural logarithm

Exact result:

$$2\pi-\frac{969}{13}\log\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)$$

Decimal approximation:

139.27865316446138779766082266534376555387548096120250040 72...

139.278653164…. result practically equal to the rest mass of Pion meson 139.57

Alternate forms:

$$2\pi + \frac{13\,243\log(2)}{104} + \frac{323}{104}\log\left(11\,747\left(77+3\sqrt{645}\right)\right)$$

$$2\pi + \frac{323}{104}\left(41\log(2) + \log\left(11\,747\left(77+3\sqrt{645}\right)\right)\right)$$

$$\frac{1}{104}\left(208\pi + 323\left(41\log(2) + \log(17) + \log(691) + \log\left(77+3\sqrt{645}\right)\right)\right)$$

Alternative representations:

$$\frac{1}{13}(987-18)\left(-\log\left(1\Big/\left(\left(\sqrt[4]{2}\,\sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\,\sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2764\times 2}\right)\right)\right)\right)+2\pi = 2\pi - \frac{969}{13}\log_e\left(\frac{1}{\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{8}\right)\left(\sqrt[4]{2}\,\sqrt[24]{68}\right)\left(\sqrt[4]{2}\,\sqrt[24]{5528}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

$$\frac{1}{13}(987-18)\left(-\log\left(1\Big/\left(\left(\sqrt[4]{2}\,\sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\,\sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2764\times 2}\right)\right)\right)\right)+2\pi = 2\pi - \frac{969}{13}\log(a)\log_a\left(\frac{1}{\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{8}\right)\left(\sqrt[4]{2}\,\sqrt[24]{68}\right)\left(\sqrt[4]{2}\,\sqrt[24]{5528}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

$$\frac{1}{13}(987-18)\left(-\log\left(1\Big/\left(\left(\sqrt[4]{2}\,\sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\,\sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2764\times 2}\right)\right)\right)\right)\right)+$$

$$2\pi = 2\pi + \frac{969}{13}\,\mathrm{Li}_1\left(1-\frac{1}{\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{8}\right)\left(\sqrt[4]{2}\,\sqrt[24]{68}\right)\left(\sqrt[4]{2}\,\sqrt[24]{5528}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

Series representations:

$$\frac{1}{13}(987-18)\left(-\log\left(1\Big/\left(\left(\sqrt[4]{2}\,\sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\,\sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2764\times 2}\right)\right)\right)\right)\right)+2\pi =$$

$$2\pi + \frac{969}{13}\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)^k}{k}$$

$$\frac{1}{13}(987-18)\left(-\log\left(1\Big/\left(\left(\sqrt[4]{2}\,\sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\,\sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\,\sqrt[24]{2764\times 2}\right)\right)\right)\right)\right)+2\pi =$$

$$2\pi + \frac{969}{13}\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{17/24}\sqrt[24]{11\,747\left(77+3\sqrt{645}\right)}}\right)^k}{k}$$

$$\frac{1}{13}(987-18)\left(-\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)\right)+2\pi =$$

$$2\pi-\frac{1938}{13}i\pi\left\lfloor\frac{\arg\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}-x\right)}{2\pi}\right\rfloor-\frac{969\log(x)}{13}+\frac{969}{13}\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}-x\right)^k x^{-k}}{k}\quad\text{for } x<0$$

Integral representation:

$$\frac{1}{13}(987-18)\left(-\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)\right)+$$

$$2\pi=2\pi-\frac{969}{13}\int_1^{\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}}\frac{1}{t}\,dt$$

And:

(55+13+2)*colog(((((1/(((2)^1/4 * (2)^1/24)) * 1/(((2)^1/4 * (34*2)^1/24)) * 1/(((2)^1/4 * (((154+6*sqrt645)*2))^1/24)) * 1/(((2)^1/4 * (4*2)^1/24)) * 1/(((2)^1/4 * (2764*2)^1/24)))))))

Where 55, 13 and 2 are Fibonacci numbers

Input:

$$(55+13+2)\left(-\log\left(\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{34\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{4\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2764\times 2}}\right)\right)$$

$\log(x)$ is the natural logarithm

Exact result:

$$-70\log\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)$$

Decimal approximation:

124.897704592493745306366705539622426630328007603541365094 3...

124.897704592… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Property:

$-70\log\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\,(154+6\sqrt{645}\,)}}\right)$ is a transcendental number

Alternate forms:

$$\frac{35}{12}\left(41\log(2)+\log\left(11\,747\left(77+3\sqrt{645}\right)\right)\right)$$

$$\frac{1435\log(2)}{12}+\frac{35}{12}\log\left(11\,747\left(77+3\sqrt{645}\right)\right)$$

$$\frac{35}{12}\left(41\log(2)+\log(17)+\log(691)+\log\left(77+3\sqrt{645}\right)\right)$$

Alternative representations:

$$(55+13+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=-70\log_e\left(\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

$$(55+13+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=-70\log(a)\log_a\left(\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

$$(55+13+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=70\,\mathrm{Li}_1\left(1-\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)$$

Series representations:

$$(55+13+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=70\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)^k}{k}$$

$$(55+13+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=$$

$$70\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{17/24}\sqrt[24]{11\,747\left(77+3\sqrt{645}\right)}}\right)^k}{k}$$

$$(55+13+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=$$

$$-140\,i\,\pi\left\lfloor\frac{\arg\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}-x\right)}{2\,\pi}\right\rfloor-70\log(x)+70\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11747\left(154+6\sqrt{645}\right)}}-x\right)^k x^{-k}}{k}\quad\text{for } x<0$$

Integral representation:

$$(55+13+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)=$$

$$-70\int_1^{\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}}\frac{1}{t}\,dt$$

And also:

(76+2)*colog(((((1/(((2)^1/4 * (2)^1/24)) *1/(((2)^1/4 * (34*2)^1/24)) * 1/ (((2)^1/4 *(((154+6*sqrt645)*2))^1/24))* 1/(((2)^1/4 *(4*2)^1/24))*1/(((2)^1/4 * (2764*2)^1/24)))))))+1/golden ratio

Where 76 and 2 are Lucas numbers

Input:

$$(76+2)\left(-\log\left(\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{34\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{\left(154+6\sqrt{645}\right)\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{4\times 2}}\times\frac{1}{\sqrt[4]{2}\,\sqrt[24]{2764\times 2}}\right)\right)+\frac{1}{\phi}$$

$\log(x)$ is the natural logarithm

ϕ is the golden ratio

Exact result:

$$\frac{1}{\phi}-78\log\left(\frac{1}{2\times 2^{2/3}\,\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)$$

Decimal approximation:

139.789761963242925332441773007087770648657231938037569681 6...

139.789761963…. result practically equal to the rest mass of Pion meson 139.57

Property:

$$\frac{1}{\phi}-78\log\left(\frac{1}{2\times 2^{2/3}\,\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)$$ is a transcendental number

Alternate forms:

$$\frac{1}{\phi}+\frac{533\log(2)}{4}+\frac{13}{4}\log\left(11\,747\left(77+3\sqrt{645}\right)\right)$$

$$\frac{1}{\phi}+\frac{13}{4}\left(41\log(2)+\log\left(11\,747\left(77+3\sqrt{645}\right)\right)\right)$$

$$\frac{13\,\phi\left(41\log(2)+\log(17)+\log(691)+\log\left(77+3\sqrt{645}\right)\right)+4}{4\,\phi}$$

Alternative representations:

$$(76+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)+\frac{1}{\phi}=-78\log_e\left(\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)+\frac{1}{\phi}$$

$$(76+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)+\frac{1}{\phi}=-78\log(a)\log_a\left(\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)+\frac{1}{\phi}$$

$$(76+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)+\frac{1}{\phi}=78\,\mathrm{Li}_1\left(1-\frac{1}{\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{8}\right)\left(\sqrt[4]{2}\ \sqrt[24]{68}\right)\left(\sqrt[4]{2}\ \sqrt[24]{5528}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2\left(154+6\sqrt{645}\right)}\right)}\right)+\frac{1}{\phi}$$

Series representations:

$$(76+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}+78\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}\right)^k}{k}$$

$$(76+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}+78\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{2\times 2^{17/24}\sqrt[24]{11\,747\left(77+3\sqrt{645}\right)}}\right)^k}{k}$$

$$(76+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-156\,i\,\pi\left\lfloor\frac{\arg\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}-x\right)}{2\,\pi}\right\rfloor-78\log(x)+$$

$$78\sum_{k=1}^{\infty}\frac{(-1)^k\left(\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}-x\right)^k x^{-k}}{k}\quad\text{for } x<0$$

Integral representation:

$$(76+2)(-1)\log\left(1\Big/\left(\left(\sqrt[4]{2}\ \sqrt[24]{34\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{\left(154+6\sqrt{645}\right)2}\right)\left(\left(\sqrt[4]{2}\ \sqrt[24]{4\times 2}\right)\left(\sqrt[4]{2}\ \sqrt[24]{2764\times 2}\right)\right)\right)\right)+$$

$$\frac{1}{\phi}=\frac{1}{\phi}-78\int_1^{\frac{1}{2\times 2^{2/3}\sqrt[24]{11\,747\left(154+6\sqrt{645}\right)}}}\frac{1}{t}\,dt$$

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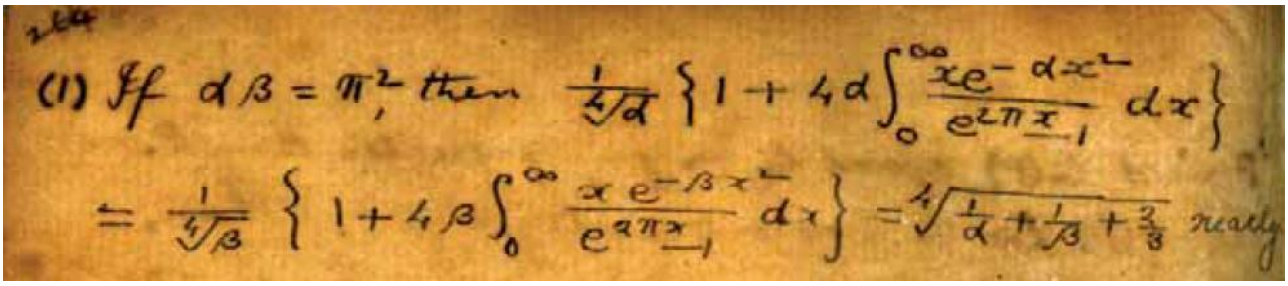

For $\alpha = \pi$ and $\beta = \pi$, we obtain:

(((1/Pi + 1/Pi + 2/3)^1/4))

Input:

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}$$

Exact result:

$$\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}$$

Decimal approximation:

1.068464184825644425897574377964239345880285534736675925161...

1.06846418482….

Property:

$\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}$ is a transcendental number

Alternate form:

$$\sqrt[4]{\frac{2\,(3+\pi)}{3\,\pi}}$$

All 4th roots of 2/3 + 2/π:

$\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}\ e^{0} \approx 1.06846$ (real, principal root)

$\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}\ e^{(i\,\pi)/2} \approx 1.06846\,i$

$\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}\ e^{i\,\pi} \approx -1.0685$ (real root)

$$\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}\; e^{-(i\,\pi)/2} \approx -1.0685\,i$$

Alternative representations:

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{2}{180^\circ}}$$

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+-\frac{2}{i\log(-1)}}$$

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{2}{\cos^{-1}(-1)}}$$

Series representations:

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{1}{2\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}}$$

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{2}{\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}}}$$

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{2}{\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{1}{1+2k}+\frac{2}{1+4k}+\frac{1}{3+4k}\right)}}$$

Integral representations:

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{1}{\int_0^{\infty}\frac{1}{1+t^2}\,dt}}$$

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{1}{\int_0^{1}\frac{1}{\sqrt{1-t^2}}\,dt}}$$

$$\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}} = \sqrt[4]{\frac{2}{3}+\frac{1}{\int_0^{\infty}\frac{\sin(t)}{t}\,dt}}$$

We have that:

(((1/(((1/Pi + 1/Pi + 2/3)^1/4)))))^1/8

Input:

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}}$$

Exact result:

$$\frac{1}{\sqrt[32]{\frac{2}{3}+\frac{2}{\pi}}}$$

Decimal approximation:

0.991756382006323331780556886585458507434083683035961074243...

0.99175638200632….. result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5}\sqrt[4]{5^3}}-1}-\varphi+1} = 1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}} \approx 0.9991104684$$

and to the dilaton value $\mathbf{0.989117352243 = \phi}$

Property:

$\frac{1}{\sqrt[32]{\frac{2}{3}+\frac{2}{\pi}}}$ is a transcendental number

Alternate form:

$$\sqrt[32]{\frac{3\pi}{2(3+\pi)}}$$

All 8th roots of 1/(2/3 + 2/π)^(1/4):

$$\frac{e^{0}}{\sqrt[32]{\frac{2}{3}+\frac{2}{\pi}}} \approx 0.991756 \text{ (real, principal root)}$$

$$\frac{e^{(i\pi)/4}}{\sqrt[32]{\frac{2}{3}+\frac{2}{\pi}}} \approx 0.70128 + 0.70128\, i$$

$$\frac{e^{(i\pi)/2}}{\sqrt[32]{\frac{2}{3}+\frac{2}{\pi}}} \approx 0.991756\, i$$

$$\frac{e^{(3i\pi)/4}}{\sqrt[32]{\frac{2}{3}+\frac{2}{\pi}}} \approx -0.7013 + 0.70128\, i$$

$$\frac{e^{i\pi}}{\sqrt[32]{\frac{2}{3}+\frac{2}{\pi}}} \approx -0.9918 \text{ (real root)}$$

Alternative representations:

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}} = \sqrt[8]{\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{180^\circ}}}}$$

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}} = \sqrt[8]{\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\cos^{-1}(-1)}}}}$$

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}} = \sqrt[8]{\frac{1}{\sqrt[4]{\frac{2}{3}+-\frac{2}{i\log(-1)}}}}$$

Series representations:

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}} = \frac{1}{\sqrt[32]{\frac{2}{3}+\frac{1}{2\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}}}$$

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}}=\frac{1}{\sqrt[32]{\frac{2}{3}+\frac{2}{\sum_{k=0}^{\infty}-\frac{4\,(-1)^k\,1195^{-1-2k}\left(5^{1+2k}-4\times 239^{1+2k}\right)}{1+2k}}}}$$

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}}=\frac{1}{\sqrt[32]{\frac{2}{3}+\frac{2}{\sum_{k=0}^{\infty}\left(-\frac{1}{4}\right)^k\left(\frac{2}{1+4k}+\frac{2}{2+4k}+\frac{1}{3+4k}\right)}}}$$

Integral representations:

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}}=\frac{1}{\sqrt[32]{\frac{2}{3}+\frac{1}{\int_0^{\infty}\frac{1}{1+t^2}\,dt}}}$$

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}}=\frac{1}{\sqrt[32]{\frac{2}{3}+\frac{1}{\int_0^{1}\frac{1}{\sqrt{1-t^2}}\,dt}}}$$

$$\sqrt[8]{\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}}=\frac{1}{\sqrt[32]{\frac{2}{3}+\frac{1}{\int_0^{\infty}\frac{\sin(t)}{t}\,dt}}}$$

16*log base 0.99175638200632 (((1/(((1/Pi + 1/Pi + 2/3)^1/4)))))-Pi+1/golden ratio

Input interpretation:

$$16\log_{0.99175638200632}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)-\pi+\frac{1}{\phi}$$

ϕ is the golden ratio

Result:

125.476441335...

125.476441335… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representation:

$$16 \log_{0.9917563820063200000}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+\frac{1}{\phi}+\frac{16 \log\left(\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)}{\log(0.9917563820063200000)}$$

Series representations:

$$16 \log_{0.9917563820063200000}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-\frac{16 \sum_{k=1}^{\infty} \frac{(-1)^k \left(-1+\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)^k}{k}}{\log(0.9917563820063200000)}$$

$$16 \log_{0.9917563820063200000}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)-\pi+\frac{1}{\phi}=\frac{1.000000000000000}{\phi}-$$

$$1.000000000000000\,\pi-1932.895370487383 \log\left(\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)-$$

$$16.00000000000000 \log\left(\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)\sum_{k=0}^{\infty}(-0.008243617993680000)^k\, G(k)$$

$$\text{for}\left(G(0)=0 \text{ and } G(k)=\frac{(-1)^{1+k}\,k}{2\,(1+k)\,(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

16*log base 0.99175638200632 (((1/(((1/Pi + 1/Pi + 2/3)^1/4)))))+11+1/golden ratio

Input interpretation:

$$16 \log_{0.99175638200632}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)+11+\frac{1}{\phi}$$

$\log_b(x)$ is the base-b logarithm

ϕ is the golden ratio

Result:

139.618033989...

139.618033989… result practically equal to the rest mass of Pion meson 139.57

Alternative representation:

$$16 \log_{0.99175638200632000}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+\frac{16 \log\left(\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)}{\log(0.99175638200632000)}$$

Series representations:

$$16 \log_{0.99175638200632000}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-\frac{16 \sum_{k=1}^{\infty} \frac{(-1)^k\left(-1+\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)^k}{k}}{\log(0.99175638200632000)}$$

$$16 \log_{0.\infty 1756382006320000}\left(\frac{1}{\sqrt[4]{\frac{1}{\pi}+\frac{1}{\pi}+\frac{2}{3}}}\right)+11+\frac{1}{\phi}=11.00000000000000+$$

$$\frac{1.000000000000000}{\phi}-1932.895370487383 \log\left(\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)-$$

$$16.00000000000000 \log\left(\frac{1}{\sqrt[4]{\frac{2}{3}+\frac{2}{\pi}}}\right)\sum_{k=0}^{\infty}(-0.008243617993680000)^k\, G(k)$$

$$\text{for}\left(G(0)=0 \text{ and } G(k)=\frac{(-1)^{1+k}\,k}{2\,(1+k)\,(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

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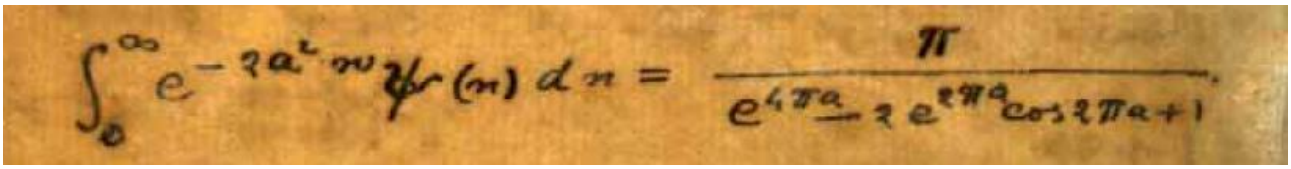

For a = 2

Pi/(((((e^(4Pi*2)-2e^(2Pi*2) cos 2Pi*2 + 1)))))

Input:

$$\frac{\pi}{e^{4\pi\times 2}-\left(2\,e^{2\pi\times 2}\right)(\cos(2)\,\pi\times 2)+1}$$

Exact result:

$$\frac{\pi}{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}$$

Decimal approximation:

$3.8205960455703698361853758638851220368411091340758333\ldots \times 10^{-11}$

3.82059604557036….*10^{-11}

Alternate forms:

$$-\frac{\pi}{-1-e^{8\pi}+4\,e^{4\pi}\,\pi\cos(2)}$$

$$\frac{\pi}{1+e^{8\pi}-2\left(e^{-2i}+e^{2i}\right)e^{4\pi}\,\pi}$$

Alternative representations:

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1-4\,\pi\cosh(-2\,i)\,e^{4\pi}+e^{8\pi}}$$

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1+e^{8\pi}-\frac{4\,\pi\,e^{4\pi}}{\sec(2)}}$$

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1-4\,\pi\cosh(2\,i)\,e^{4\pi}+e^{8\pi}}$$

Series representations:

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1+e^{8\pi}-4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-4)^k}{(2\,k)!}}$$

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1+e^{8\pi}+4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2\,k}}{(1+2\,k)!}}$$

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1+e^{8\pi}-4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{\cos\left(\frac{k\pi}{2}+z_0\right)(2-z_0)^k}{k!}}$$

Integral representations:

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1+e^{8\pi}+4\,e^{4\pi}\,\pi\left(-1+2\int_0^1\sin(2\,t)\,dt\right)}$$

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds}\quad\text{for }\gamma>0$$

$$\frac{\pi}{e^{4\pi^2}-(\cos(2)\,\pi\,2)\,2\,e^{2\pi^2}+1}=\frac{\pi}{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds}\quad\text{for }0<\gamma<\frac{1}{2}$$

sqrt[1/10^10 * 1/(((Pi/(((((e^(4Pi*2)-2e^(2Pi*2) cos 2Pi*2 + 1))))))))]

Input:

$$\sqrt{\frac{1}{10^{10}}\times\frac{1}{\frac{\pi}{e^{4\pi\times2}-\left(2\,e^{2\pi\times2}\right)(\cos(2)\pi\times2)+1}}}$$

Exact result:

$$\frac{\sqrt{\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{\pi}}}{100\,000}$$

Decimal approximation:

1.617835791367246766261901145284736113702929252494221307447...

1.61783579136724676….. result that is a very good approximation to the value of the golden ratio 1,618033988749...

Alternate form:

$$\frac{\sqrt{\frac{1+e^{8\pi}-2\left(e^{-2i}+e^{2i}\right)e^{4\pi}\,\pi}{\pi}}}{100\,000}$$

All 2nd roots of (1 + e^(8 π) - 4 e^(4 π) π cos(2))/(10000000000 π):

$$\frac{e^{0}\sqrt{\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{\pi}}}{100\,000}\approx1.618\ \text{(real, principal root)}$$

$$\frac{e^{i\pi}\sqrt{\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{\pi}}}{100\,000}\approx-1.618\ \text{(real root)}$$

Alternative representations:

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi\,2}-\left(2\,e^{2\pi\,2}\right)(\cos(2)\pi\,2)+1}}}=\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-4\,\pi\cosh(-2\,i)\,e^{4\pi}+e^{8\pi}}}}$$

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi\,2}-\left(2\,e^{2\pi\,2}\right)(\cos(2)\pi\,2)+1}}}=\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1+e^{8\pi}-\frac{4\,\pi\,e^{4\pi}}{\sec(2)}}}}$$

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-4\,\pi\cosh(2\,i)\,e^{4\pi}+e^{8\pi}}}}$$

Series representations:

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\frac{\sqrt{1+e^{8\pi}-4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}}}{100\,000\,\sqrt{\pi}}$$

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\frac{\sqrt{1+e^{8\pi}+4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}}}{100\,000\,\sqrt{\pi}}$$

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\frac{\sqrt{1+e^{8\pi}-4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{\cos\left(\frac{k\pi}{2}+z_0\right)(2-z_0)^k}{k!}}}{100\,000\,\sqrt{\pi}}$$

Integral representations:

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\frac{\sqrt{1+e^{8\pi}+4\,e^{4\pi}\,\pi\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt}}{100\,000\,\sqrt{\pi}}$$

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\frac{\sqrt{1+e^{8\pi}-4\,e^{4\pi}\,\pi\left(1-2\int_{0}^{1}\sin(2\,t)\,dt\right)}}{100\,000\,\sqrt{\pi}}$$

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\frac{\sqrt{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds}}{100\,000\,\sqrt{\pi}}\quad\text{for }\gamma>0$$

$$\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi}2-\left(2\,e^{2\pi}2\right)(\cos(2)\pi 2)+1}}}=\frac{\sqrt{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds}}{100\,000\,\sqrt{\pi}}\quad\text{for }0<\gamma<\frac{1}{2}$$

And:

1/10^27 * ((((47+7)/10^3 + sqrt[1/10^10 * 1/(((Pi/(((((e^(4Pi*2)-2e^(2Pi*2) cos 2Pi*2 + 1))))))))]))))

Where 47 and 7 are Lucas number

Input:

$$\frac{1}{10^{27}}\left(\frac{47+7}{10^3}+\sqrt{\frac{1}{10^{10}}\times\frac{1}{\frac{\pi}{e^{4\pi\times2}-\left(2\,e^{2\pi\times2}\right)(\cos(2)\pi\times2)+1}}}\right)$$

Exact result:

$$\frac{\frac{27}{500}+\frac{\sqrt{\frac{1+e^{8\pi}-4\,e^{4\pi}\pi\cos(2)}{\pi}}}{100\,000}}{1\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Decimal approximation:

$1.671835791367246766261901145284736113702929252494221 3\ldots\times10^{-27}$

1.671835791367…*10^{-27} result practically equal to the proton mass

Alternate forms:

$$\frac{5400+\sqrt{\frac{1+e^{8\pi}-4\,e^{4\pi}\pi\cos(2)}{\pi}}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

$$\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{\frac{1+e^{8\pi}-4\,e^{4\pi}\pi\cos(2)}{\pi}}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

$$\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{\frac{1+e^{8\pi}-2\left(e^{-2i}+e^{2i}\right)e^{4\pi}\pi}{\pi}}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}$$

Alternative representations:

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{\frac{54}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-4\pi\cosh(-2i)\,e^{4\pi}+e^{8\pi}}}}}{10^{27}}$$

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{\frac{54}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1+e^{8\pi}-\frac{4\pi\,e^{4\pi}}{\sec(2)}}}}}{10^{27}}$$

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{\frac{54}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-4\pi\cosh(2i)\,e^{4\pi}+e^{8\pi}}}}}{10^{27}}$$

Series representations:

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{1+e^{8\pi}-4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,\sqrt{\pi}}$$

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{1+e^{8\pi}+4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,\sqrt{\pi}}$$

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{1+e^{8\pi}-4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{\cos\left(\frac{k\pi}{2}+z_0\right)(2-z_0)^k}{k!}}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,\sqrt{\pi}}$$

Integral representations:

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{1+e^{8\pi}+4\,e^{4\pi}\,\pi\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,\sqrt{\pi}}$$

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{1+e^{8\pi}-4\,e^{4\pi}\,\pi\left(1-2\int_{0}^{1}\sin(2\,t)\,dt\right)}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,\sqrt{\pi}}$$

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,\sqrt{\pi}}\quad\text{for }\gamma>0$$

$$\frac{\frac{47+7}{10^3}+\sqrt{\frac{1}{\frac{10^{10}\,\pi}{e^{4\pi 2}-\left(2\,e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}{10^{27}}=\frac{27}{500\,000\,000\,000\,000\,000\,000\,000\,000\,000}+\frac{\sqrt{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds}}{100\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000\,\sqrt{\pi}}\quad\text{for }0<\gamma<\frac{1}{2}$$

(((1/sqrt[1/10^10 * 1/(((Pi/(((((e^(4Pi*2)-2e^(2Pi*2) cos 2Pi*2 + 1))))))))]))^1/64

Input:

$$\sqrt[64]{\sqrt{\frac{1}{\frac{1}{10^{10}}\times\frac{1}{\frac{\pi}{e^{4\pi\times 2}-\left(2\,e^{2\pi\times 2}\right)(\cos(2)\pi\times 2)+1}}}}}$$

Exact result:

$$10^{5/64}\sqrt[128]{\frac{\pi}{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}}$$

Decimal approximation:

0.992511161440058542133772227339081712370522859827805684454...

0.99251116144… result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1}=1-\cfrac{e^{-\pi\sqrt{5}}}{1+\cfrac{e^{-2\pi\sqrt{5}}}{1+\cfrac{e^{-3\pi\sqrt{5}}}{1+\cfrac{e^{-4\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}}}\approx 0.9991104684$$

and to the dilaton value $\mathbf{0.989117352243 = \phi}$

Alternate form:

$$10^{5/64}\sqrt[128]{\frac{\pi}{1+e^{8\pi}-2\left(e^{-2i}+e^{2i}\right)e^{4\pi}\,\pi}}$$

Series representations:

$$\sqrt[64]{\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}}=10^{5/64}\sqrt[128]{\pi}\sqrt[128]{\frac{1}{1+e^{8\pi}-4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-4)^k}{(2k)!}}}$$

$$\sqrt[64]{\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}}=$$

$$10^{5/64}\sqrt[128]{\pi}\sqrt[128]{\frac{1}{1+e^{8\pi}-4\,e^{4\pi}\,\pi\left(J_0(2)+2\sum_{k=1}^{\infty}(-1)^k\,J_{2k}(2)\right)}}$$

$$\sqrt[64]{\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}} =$$

$$10^{5/64}\sqrt[128]{\pi}\ \sqrt[128]{\frac{1}{1+e^{8\pi}+4\,e^{4\pi}\,\pi\sum_{k=0}^{\infty}\frac{(-1)^k\left(2-\frac{\pi}{2}\right)^{1+2k}}{(1+2k)!}}}$$

Integral representations:

$$\sqrt[64]{\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}} = 10^{5/64}\sqrt[128]{\pi}\ \sqrt[128]{\frac{1}{1+e^{8\pi}+4\,e^{4\pi}\,\pi\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt}}$$

$$\sqrt[64]{\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}} = 10^{5/64}\sqrt[128]{\pi}\ \sqrt[128]{\frac{1}{1+e^{8\pi}-4\,e^{4\pi}\,\pi\left(1-2\int_{0}^{1}\sin(2\,t)\,dt\right)}}$$

$$\sqrt[64]{\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}} =$$

$$10^{5/64}\sqrt[128]{\pi}\ \sqrt[128]{\frac{1}{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{-1/s+s}}{\sqrt{s}}\,ds}} \quad \text{for } \gamma > 0$$

$$\sqrt[64]{\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}} = 10^{5/64}\sqrt[128]{\pi}\ \sqrt[128]{\frac{1}{1+e^{8\pi}+2\,i\,e^{4\pi}\,\sqrt{\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds}}$$

$$\text{for } 0 < \gamma < \frac{1}{2}$$

2log base 0.99251116144(((1/sqrt[1/10^10 * 1/(((Pi/(((((e^(4Pi*2)-2e^(2Pi*2) cos 2Pi*2 + 1)))))))]))))-Pi+1/golden ratio

Input interpretation:

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{10^{10}}\times\frac{1}{\frac{\pi}{e^{4\pi\times2}-(2e^{2\pi\times2})(\cos(2)\pi\times2)+1}}}}\right)-\pi+\frac{1}{\phi}$$

$\log_b(x)$ is the base- b logarithm

ϕ is the golden ratio

Result:

125.476441...

125.476441… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representations:

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi 2}-(2e^{2\pi 2})(\cos(2)\pi 2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+\frac{1}{\phi}+\frac{2\log\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\pi}{1-4\pi\cos(2)e^{4\pi}+e^{8\pi}}}}}\right)}{\log(0.992511161440000)}$$

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi 2}-(2e^{2\pi 2})(\cos(2)\pi 2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\pi}{1-4\pi\cosh(-2i)e^{4\pi}+e^{8\pi}}}}}\right)+\frac{1}{\phi}$$

$$2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\, 10^{10}}{e^{4\pi 2}-\left(2\, e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-4\pi\cosh(2i)\,e^{4\pi}+e^{8\pi}}}}}\right)+\frac{1}{\phi}$$

$$2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\, 10^{10}}{e^{4\pi 2}-\left(2\, e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-2\pi\left(e^{-2i}+e^{2i}\right)e^{4\pi}+e^{8\pi}}}}}\right)+\frac{1}{\phi}$$

Series representations:

$$2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\, 10^{10}}{e^{4\pi 2}-\left(2\, e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{\sqrt{\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{10\,000\,000\,000\,\pi}}}\right)^k}{k}}{\log(0.992511161440000)}$$

$$2\log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\log_{0.9925111614400000}\left(1\Big/\left(\exp\left(i\,\pi\left\lfloor\frac{\arg\left(-x+\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{10\,000\,000\,000\,\pi}\right)}{2\,\pi}\right\rfloor\right)\sqrt{x}\right.\right.$$

$$\left.\left.\sum_{k=0}^{\infty}\frac{(-1)^k\,x^{-k}\left(-x+\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{10000\,000\,000\,\pi}\right)^k\left(-\frac{1}{2}\right)_k}{k!}\right)\right)\quad\text{for}\ (x\in\mathbb{R}\ \text{and}\ x<0)$$

$$2\log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\log_{0.9925111614400000}\left(\frac{\left(\frac{1}{z_0}\right)^{-1/2\left\lfloor\arg\left(\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{10000\,000\,000\,\pi}-z_0\right)\Big/(2\pi)\right\rfloor}z_0^{1/2\left(-1-\left\lfloor\arg\left(\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{10\,000\,000\,000\,\pi}-z_0\right)\Big/(2\pi)\right\rfloor\right)}}{\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{1+e^{8\pi}-4\,e^{4\pi}\,\pi\cos(2)}{10000\,000\,000\,\pi}-z_0\right)^k z_0^{-k}}{k!}}\right)$$

Integral representations:

$$2\log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi^2}-\left(2\,e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2\log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}+4\,e^{4\pi}\,\pi\left(-1+2\int_0^1\sin(2\,t)\,dt\right)}{10000\,000\,000\,\pi}}}\right)$$

$$2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\, 10^{10}}{e^{4\pi^2}-\left(2\, e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}+4\, e^{4\pi}\, \pi \int_{\frac{\pi}{2}}^{2} \sin(t)\, dt}{10\,000\,000\,000\, \pi}}}\right)$$

$$2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\, 10^{10}}{e^{4\pi^2}-\left(2\, e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}-\frac{2\, e^{4\pi}\sqrt{\pi}}{i} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\mathcal{A}^{-1/s+s}}{\sqrt{s}}\, ds}{10\,000\,000\,000\, \pi}}}\right) \text{ for } \gamma > 0$$

$$2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\, 10^{10}}{e^{4\pi^2}-\left(2\, e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)-\pi+\frac{1}{\phi}=$$

$$\frac{1}{\phi}-\pi+2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}-\frac{2\, e^{4\pi}\sqrt{\pi}}{i} \int_{-i\infty+\gamma}^{i\infty+\gamma} \frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\, ds}{10\,000\,000\,000\, \pi}}}\right) \text{ for } 0 < \gamma < \frac{1}{2}$$

2log base 0.99251116144(((1/sqrt[1/10^10 * 1/(((Pi/(((((e^(4Pi*2)-2e^(2Pi*2) cos 2Pi*2 + 1)))))))]]))+11+1/golden ratio

Input interpretation:

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{10^{10}}\times\frac{1}{\frac{\pi}{e^{4\pi\times2}-\left(2\,e^{2\pi\times2}\right)(\cos(2)\pi\times2)+1}}}}\right)+11+\frac{1}{\phi}$$

$\log_b(x)$ is the base- b logarithm

ϕ is the golden ratio

Result:

139.618034...

139.618034… result practically equal to the rest mass of Pion meson 139.57

Alternative representations:

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi\,2}-\left(2\,e^{2\pi\,2}\right)(\cos(2)\pi\,2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+\frac{2\log\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-4\,\pi\cos(2)\,e^{4\pi}+e^{8\pi}}}}}\right)}{\log(0.992511161440000)}$$

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi\,10^{10}}{e^{4\pi\,2}-\left(2\,e^{2\pi\,2}\right)(\cos(2)\pi\,2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\,\pi}{1-4\,\pi\cosh(-2\,i)\,e^{4\pi}+e^{8\pi}}}}}\right)+\frac{1}{\phi}$$

$$2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi 2}-\left(2 e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\pi}{1-4\pi \cosh(2 i) e^{4\pi}+e^{8\pi}}}}}\right)+\frac{1}{\phi}$$

$$2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi 2}-\left(2 e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{10^{10}\pi}{1-2\pi\left(e^{-2 i}+e^{2 i}\right)e^{4\pi}+e^{8\pi}}}}}\right)+\frac{1}{\phi}$$

Series representations:

$$2 \log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi 2}-\left(2 e^{2\pi 2}\right)(\cos(2)\pi 2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}-\frac{2\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{1}{\sqrt{\frac{1+e^{8\pi}-4 e^{4\pi}\pi\cos(2)}{10000000000\pi}}}\right)^k}{k}}{\log(0.992511161440000)}$$

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi^2}-\left(2e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2\log_{0.992511161440000}\left(1\Big/\left(\exp\left(i\pi\left\lfloor\frac{\arg\left(-x+\frac{1+e^{8\pi}-4e^{4\pi}\pi\cos(2)}{10\,000\,000\,000\,\pi}\right)}{2\pi}\right\rfloor\right)\sqrt{x}\right.\right.$$
$$\left.\left.\sum_{k=0}^{\infty}\frac{(-1)^k x^{-k}\left(-x+\frac{1+e^{8\pi}-4e^{4\pi}\pi\cos(2)}{10000\,000\,000\,\pi}\right)^k\left(-\frac{1}{2}\right)_k}{k!}\right)\right) \text{ for } (x\in\mathbb{R} \text{ and } x<0)$$

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi^2}-\left(2e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2\log_{0.992511161440000}\left(\frac{\left(\frac{1}{z_0}\right)^{-1/2\left\lfloor\arg\left(\frac{1+e^{8\pi}-4e^{4\pi}\pi\cos(2)}{10000\,000\,000\,\pi}-z_0\right)/(2\pi)\right\rfloor}z_0^{1/2\left(-1-\left\lfloor\arg\left(\frac{1+e^{8\pi}-4e^{4\pi}\pi\cos(2)}{10\,000\,000\,000\,\pi}-z_0\right)/(2\pi)\right\rfloor\right)}}{\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(\frac{1+e^{8\pi}-4e^{4\pi}\pi\cos(2)}{10000\,000\,000\,\pi}-z_0\right)^k z_0^{-k}}{k!}}\right)$$

Integral representations:

$$2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi^2}-\left(2e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2\log_{0.992511161440000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}+4e^{4\pi}\pi\left(-1+2\int_0^1\sin(2t)\,dt\right)}{10000\,000\,000\,\pi}}}\right)$$

$$2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi^2}-\left(2e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}+4e^{4\pi}\pi\int_{\frac{\pi}{2}}^{2}\sin(t)\,dt}{10000000000\pi}}}\right)$$

$$2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi^2}-\left(2e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}-\frac{2e^{4\pi}\sqrt{\pi}}{i}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\mathfrak{R}^{-1/s+s}}{\sqrt{s}}\,ds}{10000000000\pi}}}\right) \quad \text{for } \gamma > 0$$

$$2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1}{\frac{\pi 10^{10}}{e^{4\pi^2}-\left(2e^{2\pi^2}\right)(\cos(2)\pi^2)+1}}}}\right)+11+\frac{1}{\phi}=$$

$$11+\frac{1}{\phi}+2 \log_{0.9925111614400000}\left(\frac{1}{\sqrt{\frac{1+e^{8\pi}-\frac{2e^{4\pi}\sqrt{\pi}}{i}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)}{\Gamma\left(\frac{1}{2}-s\right)}\,ds}{10000000000\pi}}}\right) \quad \text{for } 0 < \gamma < \frac{1}{2}$$

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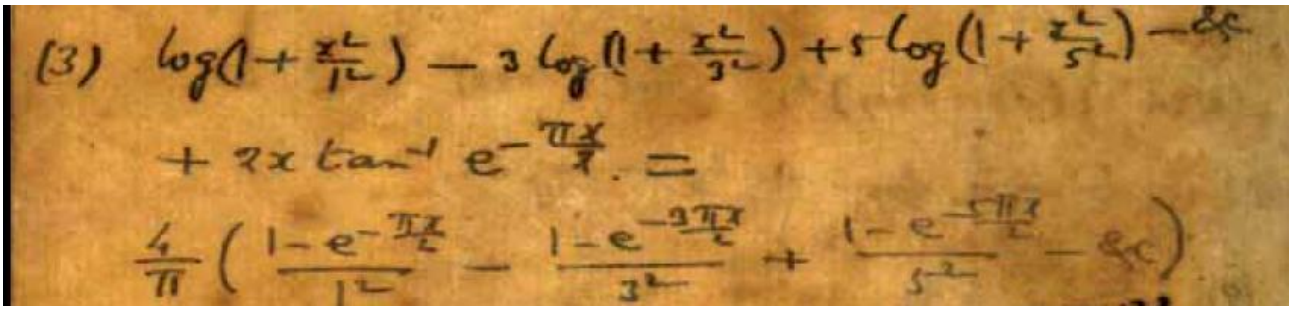

(4/Pi)*[(((1-exp-(((1*(2Pi)/2)))))/1^2)))-(((1-exp-(((3*2Pi)/2)))))/3^2)))+(((1-exp-(((5*2Pi)/2)))))/5^2)]

Input:

$$\frac{4}{\pi}\left(\frac{1-\exp\left(-\left(1\times\frac{2\pi}{2}\right)\right)}{1^2}-\frac{1-\exp\left(-\left(\frac{1}{2}\,(3\times 2\pi)\right)\right)}{3^2}+\frac{1-\exp\left(-\left(\frac{1}{2}\,(5\times 2\pi)\right)\right)}{5^2}\right)$$

Exact result:

$$\frac{4\left(1-e^{-\pi}+\frac{1}{25}\left(1-e^{-5\pi}\right)+\frac{1}{9}\left(e^{-3\pi}-1\right)\right)}{\pi}$$

Decimal approximation:

1.12768780535321075447954410809519258017040292380323130553 4...

1.12768780535….

Alternate forms:

$$\frac{836-36\,e^{-5\pi}+100\,e^{-3\pi}-900\,e^{-\pi}}{225\,\pi}$$

$$-\frac{4\left(-209+9\,e^{-5\pi}-25\,e^{-3\pi}+225\,e^{-\pi}\right)}{225\,\pi}$$

$$\frac{836-4\,e^{-5\pi}\left(9-25\,e^{2\pi}+225\,e^{4\pi}\right)}{225\,\pi}$$

Series representations:

$$\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)4}{\pi}=\frac{1}{225\,\pi}4\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{-5\pi}$$
$$\left(-1+\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{\pi}\right)\left(9+9\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{\pi}-16\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{2\pi}-16\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{3\pi}+209\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{4\pi}\right)$$

$$\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)4}{\pi}=\frac{1}{225\,\pi}4\left(-1+\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{\pi}\right)$$
$$\left(9+9\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{\pi}-16\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{2\pi}-16\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{3\pi}+209\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{4\pi}\right)$$
$$\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{-5\pi}$$

$$\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)4}{\pi}=$$
$$\frac{1}{225\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}e^{-20\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\left(-1+e^{\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\right)$$
$$\left(1+e^{\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\right)\left(1+e^{2\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\right)\left(9+9\,e^{4\sum_{k=0}^{\infty}(-1)^k/(1+2k)}-\right.$$
$$\left.16\,e^{8\sum_{k=0}^{\infty}(-1)^k/(1+2k)}-16\,e^{12\sum_{k=0}^{\infty}(-1)^k/(1+2k)}+209\,e^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\right)$$

Integral representations:

$$\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)4}{\pi}=$$
$$\frac{1}{225\int_0^{\infty}\frac{\sin(t)}{t}\,dt}2\,e^{-10\int_0^{\infty}\sin(t)/t\,dt}\left(-1+e^{\int_0^{\infty}\sin(t)/t\,dt}\right)\left(1+e^{\int_0^{\infty}\sin(t)/t\,dt}\right)$$
$$\left(9+9\,e^{2\int_0^{\infty}\sin(t)/t\,dt}-16\,e^{4\int_0^{\infty}\sin(t)/t\,dt}-16\,e^{6\int_0^{\infty}\sin(t)/t\,dt}+209\,e^{8\int_0^{\infty}\sin(t)/t\,dt}\right)$$

$$\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)4}{\pi}=$$
$$\frac{1}{225\int_0^\infty \frac{1}{1+t^2}\,dt}\,2\,e^{-10\int_0^\infty 1/(1+t^2)\,dt}\left(-1+e^{\int_0^\infty 1/(1+t^2)\,dt}\right)\left(1+e^{\int_0^\infty 1/(1+t^2)\,dt}\right)$$
$$\left(9+9\,e^{2\int_0^\infty 1/(1+t^2)\,dt}-16\,e^{4\int_0^\infty 1/(1+t^2)\,dt}-16\,e^{6\int_0^\infty 1/(1+t^2)\,dt}+209\,e^{8\int_0^\infty 1/(1+t^2)\,dt}\right)$$

$$\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)4}{\pi}=\frac{1}{225\int_0^\infty \frac{\sin^2(t)}{t^2}\,dt}$$
$$2\,e^{-10\int_0^\infty \sin^2(t)/t^2\,dt}\left(-1+e^{\int_0^\infty \sin^2(t)/t^2\,dt}\right)\left(1+e^{\int_0^\infty \sin^2(t)/t^2\,dt}\right)$$
$$\left(9+9\,e^{2\int_0^\infty \sin^2(t)/t^2\,dt}-16\,e^{4\int_0^\infty \sin^2(t)/t^2\,dt}-16\,e^{6\int_0^\infty \sin^2(t)/t^2\,dt}+209\,e^{8\int_0^\infty \sin^2(t)/t^2\,dt}\right)$$

1/ (((((4/Pi)*[(((1-exp-(((1*(2Pi)/2)))))/1^2)))-(((1-exp-(((3*2Pi)/2)))))/3^2)))+(((1-exp-(((5*2Pi)/2)))))/5^2)])))^1/16

Input:

$$\frac{1}{\sqrt[16]{\frac{4}{\pi}\left(\frac{1-\exp\left(-\left(1\times\frac{2\pi}{2}\right)\right)}{1^2}-\frac{1-\exp\left(-\left(\frac{1}{2}(3\times 2\pi)\right)\right)}{3^2}+\frac{1-\exp\left(-\left(\frac{1}{2}(5\times 2\pi)\right)\right)}{5^2}\right)}}$$

Exact result:

$$\frac{\sqrt[16]{\frac{\pi}{1-e^{-\pi}+\frac{1}{25}\left(1-e^{-5\pi}\right)+\frac{1}{9}\left(e^{-3\pi}-1\right)}}}{\sqrt[8]{2}}$$

Decimal approximation:

0.992517549804915570322498320383589647162373397550035453842...

0.9925175498…. result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1}=1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}}\approx 0.9991104684$$

and to the dilaton value $\mathbf{0.989117352243 = \phi}$

Alternate forms:

$$\sqrt[8]{\frac{15}{2}}\ \sqrt[16]{\frac{\pi}{209-9\,e^{-5\pi}+25\,e^{-3\pi}-225\,e^{-\pi}}}$$

$$\sqrt[8]{\frac{15}{2}}\ e^{(5\pi)/16}\sqrt[16]{\frac{\pi}{-9+25\,e^{2\pi}-225\,e^{4\pi}+209\,e^{5\pi}}}$$

Series representations:

$$\frac{1}{\sqrt[16]{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}{\pi}}}=$$

$$\sqrt[8]{\frac{15}{2}}\ \sqrt[16]{\pi}\ \sqrt[16]{\frac{\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{5\pi}}{-9+25\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{2\pi}-225\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{4\pi}+209\left(\sum_{k=0}^{\infty}\frac{1}{k!}\right)^{5\pi}}}$$

$$\frac{1}{\sqrt[16]{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}{\pi}}}=\sqrt[8]{15}$$

$$\sqrt[16]{\frac{e^{20\sum_{k=0}^{\infty}(-1)^k/(1+2k)}\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}}{-9+25\,e^{8\sum_{k=0}^{\infty}(-1)^k/(1+2k)}-225\,e^{16\sum_{k=0}^{\infty}(-1)^k/(1+2k)}+209\,e^{20\sum_{k=0}^{\infty}(-1)^k/(1+2k)}}}$$

$$\frac{1}{\sqrt[16]{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}{\pi}}}=$$

$$\sqrt[8]{\frac{15}{2}}\ \sqrt[16]{\pi}\ \sqrt[16]{\frac{\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{5\pi}}{-9+25\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{2\pi}-225\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{4\pi}+209\left(\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k}{k!}}\right)^{5\pi}}}$$

Integral representations:

$$\frac{1}{\sqrt[16]{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}{\pi}}}=$$

$$\frac{\sqrt[8]{15}\ \sqrt[16]{\frac{e^{10\int_0^{\infty}\sin(t)/t\,dt}\int_0^{\infty}\frac{\sin(t)}{t}\,dt}{-9+25\,e^{4\int_0^{\infty}\sin(t)/t\,dt}-225\,e^{8\int_0^{\infty}\sin(t)/t\,dt}+209\,e^{10\int_0^{\infty}\sin(t)/t\,dt}}}}{\sqrt[16]{2}}$$

$$\frac{1}{\sqrt[16]{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}{\pi}}}=$$

$$\frac{\sqrt[8]{15}\ \sqrt[16]{\frac{e^{10\int_0^{\infty}1/(1+t^2)\,dt}\int_0^{\infty}\frac{1}{1+t^2}\,dt}{-9+25\,e^{4\int_0^{\infty}1/(1+t^2)\,dt}-225\,e^{8\int_0^{\infty}1/(1+t^2)\,dt}+209\,e^{10\int_0^{\infty}1/(1+t^2)\,dt}}}}{\sqrt[16]{2}}$$

$$\frac{1}{\sqrt[16]{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}{\pi}}}=$$

$$\sqrt[8]{15}\ \sqrt[16]{\frac{e^{20\int_0^1\sqrt{1-t^2}\,dt}\int_0^1\sqrt{1-t^2}\,dt}{-9+25\,e^{8\int_0^1\sqrt{1-t^2}\,dt}-225\,e^{16\int_0^1\sqrt{1-t^2}\,dt}+209\,e^{20\int_0^1\sqrt{1-t^2}\,dt}}}$$

-Pi+1/golden ratio+8 log base 0.9925175((1/ (((((4/Pi)*[(((1-exp-(((1*(2Pi)/2)))))/1^2)))-(((1-exp-(((3*2Pi)/2)))))/3^2)))+(((1-exp-(((5*2Pi)/2)))))/5^2)])))

Input interpretation:

$$-\pi+\frac{1}{\phi}+8\log_{0.9925175}\left(\frac{1}{\frac{4}{\pi}\left(\frac{1-\exp\left(-\left(1\times\frac{2\pi}{2}\right)\right)}{1^2}-\frac{1-\exp\left(-\left(\frac{1}{2}(3\times2\pi)\right)\right)}{3^2}+\frac{1-\exp\left(-\left(\frac{1}{2}(5\times2\pi)\right)\right)}{5^2}\right)}\right)$$

$\log_b(x)$ is the base-b logarithm

ϕ is the golden ratio

Result:

125.476…

125.476… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representation:

$$-\pi+\frac{1}{\phi}+8\log_{0.992518}\left(\frac{1}{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times2\pi)\right)}{5^2}\right)^4}{\pi}}\right)=$$

$$-\pi+\frac{1}{\phi}+\frac{8\log\left(\frac{1}{\frac{4\left((1-\exp(-\pi))\frac{1}{1}-\frac{1}{9}(1-\exp(-3\pi))+\frac{1-\exp(-5\pi)}{5^2}\right)}{\pi}}\right)}{\log(0.992518)}$$

Series representations:

$$-\pi+\frac{1}{\phi}+8\log_{0.992518}\left(\frac{1}{\frac{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times2\pi)\right)}{5^2}\right)^4}{\pi}}\right)=$$

$$\frac{1}{\phi}-\pi-\frac{8\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1+\frac{225\pi}{836-36\exp(-5\pi)+100\exp(-3\pi)-900\exp(-\pi)}\right)^k}{k}}{\log(0.992518)}$$

$$-\pi+\frac{1}{\phi}+8\log_{0.9925175498}\left(\frac{1}{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}\right)^{\pi}=$$
$$\frac{1}{\phi}-\pi-1065.16\log\left(\frac{225\pi}{836-36\exp(-5\pi)+100\exp(-3\pi)-900\exp(-\pi)}\right)-$$
$$8\log\left(\frac{225\pi}{836-36\exp(-5\pi)+100\exp(-3\pi)-900\exp(-\pi)}\right)\sum_{k=0}^{\infty}(-0.0074825)^k\,G(k)$$
$$\text{for}\left(G(0)=0\text{ and }\frac{(-1)^k\,k}{2(1+k)(2+k)}+G(k)=\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

$$-\pi+\frac{1}{\phi}+8\log_{0.9925175498}\left(\frac{1}{\left(\frac{1-\exp\left(-\frac{1}{2}(2\pi)\right)}{1^2}-\frac{1-\exp\left(-\frac{1}{2}(3\times 2\pi)\right)}{3^2}+\frac{1-\exp\left(-\frac{1}{2}(5\times 2\pi)\right)}{5^2}\right)^4}\right)^{\pi}=$$
$$\frac{1}{\phi}-\pi-1065.16\log\left(\frac{225\pi}{836-36\exp(-5\pi)+100\exp(-3\pi)-900\exp(-\pi)}\right)-$$
$$8\log\left(\frac{225\pi}{836-36\exp(-5\pi)+100\exp(-3\pi)-900\exp(-\pi)}\right)\sum_{k=0}^{\infty}(-0.0074825)^k\,G(k)$$
$$\text{for}\left(G(0)=0\text{ and }G(k)=\frac{(-1)^{1+k}\,k}{2(1+k)(2+k)}+\sum_{j=1}^{k}\frac{(-1)^{1+j}\,G(-j+k)}{1+j}\right)$$

8log base 0.9925175498(0.8867702525937869923416726)+11+1/golden ratio

Input interpretation:

$$8\log_{0.9925175498}(0.8867702525937869923416726)+11+\frac{1}{\phi}$$

$\log_b(x)$ is the base-b logarithm

ϕ is the golden ratio

Result:

139.61803...

139.61803… result practically equal to the rest mass of Pion meson 139.57

Alternative representation:

$$8 \log_{0.992518}(0.8867702525937869923416726000 0) + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} + \frac{8 \log(0.8867702525937869923416726000 0)}{\log(0.992518)}$$

Series representations:

$$8 \log_{0.992518}(0.8867702525937869923416726000 0) + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} - \frac{8 \sum_{k=1}^{\infty} \frac{(-1)^k (-0.113229747406213007658327400 00)^k}{k}}{\log(0.992518)}$$

$$8 \log_{0.992518}(0.8867702525937869923416726000 0) + 11 + \frac{1}{\phi} = 11 + \frac{1}{\phi} - 1065.17 \log(0.8867702525937869923416726000 0) - 8 \log(0.8867702525937869923416726000 0) \sum_{k=0}^{\infty} (-0.00748245)^k G(k)$$

$$\text{for } \left(G(0) = 0 \text{ and } G(k) = \frac{(-1)^{1+k} k}{2 (1+k) (2+k)} + \sum_{j=1}^{k} \frac{(-1)^{1+j} G(-j+k)}{1+j} \right)$$

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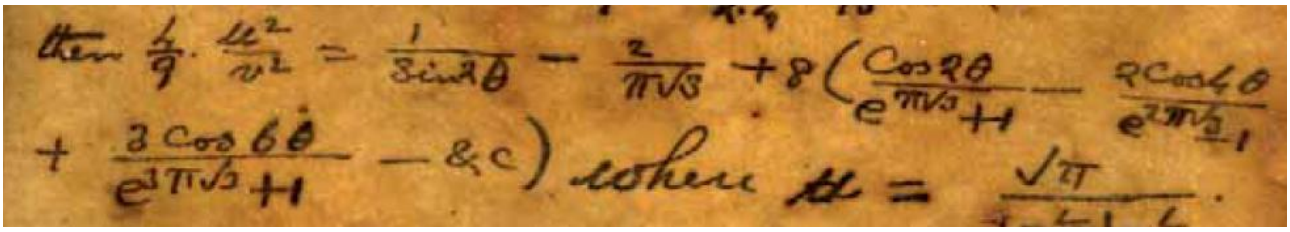

For θ = 2, we obtain

1/(sin(4)) – 2/(Pi*sqrt3) + 8((((cos(4))/(e^(Pi*sqrt3)+1)))-((2cos(8)/(e^(2Pi*sqrt3)-1)))+((3cos(12)/(e^(3Pi*sqrt3)+1))))

Input:

$$\frac{1}{\sin(4)} - \frac{2}{\pi \sqrt{3}} + 8 \left(\frac{\cos(4)}{e^{\pi \sqrt{3}} + 1} - 2 \times \frac{\cos(8)}{e^{2 \pi \sqrt{3}} - 1} + 3 \times \frac{\cos(12)}{e^{3 \pi \sqrt{3}} + 1} \right)$$

Exact result:

$$-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(4)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(8)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(12)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(4)$$

$\csc(x)$ is the cosecant function

Decimal approximation:

−1.711418269772074314952122499890465231903553424457515379 27…

-1.711418269772…

Alternate forms:

$$-\frac{2}{\sqrt{3}\,\pi}+\frac{8\cos(4)}{1+e^{\sqrt{3}\,\pi}}-\frac{16\cos(8)}{e^{2\sqrt{3}\,\pi}-1}+\frac{24\cos(12)}{1+e^{3\sqrt{3}\,\pi}}-\frac{2\sin(4)}{\cos(8)-1}$$

$$-\frac{2}{\sqrt{3}\,\pi}+\frac{16\sin^2(4)}{e^{2\sqrt{3}\,\pi}-1}+\frac{24\cos^3(4)}{1+e^{3\sqrt{3}\,\pi}}-\frac{16\cos^2(4)}{e^{2\sqrt{3}\,\pi}-1}+\frac{8\cos(4)}{1+e^{\sqrt{3}\,\pi}}+\csc(4)-\frac{72\sin^2(4)\cos(4)}{1+e^{3\sqrt{3}\,\pi}}$$

$$-\frac{2}{\sqrt{3}\,\pi}+\left(8\left(-\cos(4)+e^{3\sqrt{3}\,\pi}\cos(4)-2\cos(8)-2e^{2\sqrt{3}\,\pi}(\cos(4)+\cos(8))-3\cos(12)+e^{\sqrt{3}\,\pi}(2\cos(4)+2\cos(8)+3\cos(12))\right)\right)\Big/\left(\left(e^{\sqrt{3}\,\pi}-1\right)\left(1+e^{\sqrt{3}\,\pi}\right)\left(1-e^{\sqrt{3}\,\pi}+e^{2\sqrt{3}\,\pi}\right)\right)+\csc(4)$$

Alternative representations:

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{1}{\cos\left(-4+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-8\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-12\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{1}{\cos\left(-4+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(4\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(8\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(12\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=-\frac{1}{\cos\left(4+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-8\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-12\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

Series representations:

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{2\sqrt{3}+6i\pi\sum_{k=1}^{\infty}q^{-1+2k}-3\pi\sum_{k=0}^{\infty}\frac{(-1)^k 2^{3+4k}\left(\frac{1}{1+e^{\sqrt{3}\pi}}-\frac{2^{1+2k}}{-1+e^{2\sqrt{3}\pi}}+\frac{3^{1+2k}}{1+e^{3\sqrt{3}\pi}}\right)}{(2k)!}}{3\pi}\quad\text{for}$$
$$q=e^{4i}$$

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{2\sqrt{3}-12\pi\sum_{k=-\infty}^{\infty}\frac{(-1)^k}{16-k^2\pi^2}-3\pi\sum_{k=0}^{\infty}\frac{(-1)^k 2^{3+4k}\left(\frac{1}{1+e^{\sqrt{3}\pi}}-\frac{2^{1+2k}}{-1+e^{2\sqrt{3}\pi}}+\frac{3^{1+2k}}{1+e^{3\sqrt{3}\pi}}\right)}{(2k)!}}{3\pi}$$

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{1}{3\pi}\left(2\sqrt{3}+6i\pi\sum_{k=1}^{\infty}q^{-1+2k}-\right.$$
$$\left.3\pi\sum_{k=0}^{\infty}\left(\frac{(-1)^k 2^{3+4k}}{\left(1+e^{\sqrt{3}\pi}\right)(2k)!}+\frac{(-1)^{1+k}2^{4+6k}}{\left(-1+e^{2\sqrt{3}\pi}\right)(2k)!}+\frac{(-1)^k 2^{3+4k}\times 3^{1+2k}}{\left(1+e^{3\sqrt{3}\pi}\right)(2k)!}\right)\right)$$
$$\text{for } q=e^{4i}$$

Integral representations:

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$\frac{8}{1+e^{\pi\sqrt{3}}}-\frac{16}{-1+e^{2\pi\sqrt{3}}}+\frac{24}{1+e^{3\pi\sqrt{3}}}+\frac{1}{4\int_0^1\cos(4t)\,dt}+$$
$$\int_0^1 32\left(-\frac{\sin(4t)}{1+e^{\pi\sqrt{3}}}+\frac{4\sin(8t)}{-1+e^{2\pi\sqrt{3}}}-\frac{9\sin(12t)}{1+e^{3\pi\sqrt{3}}}\right)dt-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{8}{1+e^{\pi\sqrt{3}}}-\frac{16}{-1+e^{2\pi\sqrt{3}}}+$$
$$\frac{24}{1+e^{3\pi\sqrt{3}}}+\int_0^1 32\left(-\frac{\sin(4t)}{1+e^{\pi\sqrt{3}}}+\frac{4\sin(8t)}{-1+e^{2\pi\sqrt{3}}}-\frac{9\sin(12t)}{1+e^{3\pi\sqrt{3}}}\right)dt-$$
$$\frac{2}{\pi\sqrt{3}}+\frac{i\pi}{\sqrt{\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\pi^{-4/s+s}}{s^{3/2}}\,ds}\quad\text{for } \gamma>0$$

$$\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(8)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$\left(-8\int_0^1\cos(4t)\,dt+\pi\sqrt{3}+4\pi\left(\int_0^1\cos(4t)\,dt\right)\right.$$
$$\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(\frac{12\,\mathcal{A}^{-36/s+s}\sqrt{\pi}}{\left(1+e^{3\pi\sqrt{3}}\right)i\pi\sqrt{s}}-\frac{8\,\mathcal{A}^{-16/s+s}\sqrt{\pi}}{\left(-1+e^{2\pi\sqrt{3}}\right)i\pi\sqrt{s}}+\frac{4\,\mathcal{A}^{-4/s+s}\sqrt{\pi}}{\left(1+e^{\pi\sqrt{3}}\right)i\pi\sqrt{s}}\right)\right.$$
$$\left.\left.ds\right)\sqrt{3}\right)\Big/\left(4\pi\sqrt{3}\int_0^1\cos(4t)\,dt\right)\quad\text{for }\gamma>0$$

From which, we obtain:

-(((((1/(sin(4)) – 2/(Pi*sqrt3) + 8((((cos(4))/(e^(Pi*sqrt3)+1)))-((2cos(8)/(e^(2Pi*sqrt3)-1)))+((3cos(12)/(e^(3Pi*sqrt3)+1)))))))))^9

Input:

$$-\left(\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(8)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)\right)^9$$

Exact result:

$$-\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(4)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(8)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(12)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(4)\right)^9$$

$\csc(x)$ is the cosecant function

Decimal approximation:

125.952117960217272827853223906787222027416643934191308001 5...

125.9521179… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

And:

-(((((1/(sin(4)) – 2/(Pi*sqrt3) + 8((((cos(4))/(e^(Pi*sqrt3)+1)))-((2cos(8)/(e^(2Pi*sqrt3)-1)))+((3cos(12)/(e^(3Pi*sqrt3)+1)))))))))^9+11+Pi-1/golden ratio

Input:

$$-\left(\frac{1}{\sin(4)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(4)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(8)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(12)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\circ}+11+\pi-\frac{1}{\phi}$$

ϕ is the golden ratio

Exact result:

$$-\frac{1}{\phi}+11+\pi-\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(4)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(8)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(12)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(4)\right)^{\circ}$$

$\csc(x)$ is the cosecant function

Decimal approximation:

139.475676625057171218111280455701086793893504153760650960 3...

139.475676625… result practically equal to the rest mass of Pion meson 139.57

For θ = 3/2, we obtain:

1/(sin(3)) – 2/(Pi*sqrt3) + 8((((cos(3))/(e^(Pi*sqrt3)+1)))-((2cos(6)/(e^(2Pi*sqrt3)-1)))+((3cos(9)/(e^(3Pi*sqrt3)+1))))

Input:

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(6)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)$$

Exact result:

$$-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(9)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(3)$$

$\csc(x)$ is the cosecant function

Decimal approximation:

6.684152177327028995705938987005415639180638709473686259969...

6.684152177327…

Alternate forms:

$$-\frac{2}{\sqrt{3}\,\pi}+\frac{8\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{16\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{24\cos(9)}{1+e^{3\sqrt{3}\,\pi}}-\frac{2\sin(3)}{\cos(6)-1}$$

$$-\frac{2}{\sqrt{3}\,\pi}+\frac{16\sin^2(3)}{e^{2\sqrt{3}\,\pi}-1}+\frac{24\cos^3(3)}{1+e^{3\sqrt{3}\,\pi}}-\frac{16\cos^2(3)}{e^{2\sqrt{3}\,\pi}-1}+\frac{8\cos(3)}{1+e^{\sqrt{3}\,\pi}}+\csc(3)-\frac{72\sin^2(3)\cos(3)}{1+e^{3\sqrt{3}\,\pi}}$$

$$-\frac{2}{\sqrt{3}\,\pi}+\left(8\left(-\cos(3)+e^{3\sqrt{3}\,\pi}\cos(3)-2\cos(6)-2\,e^{2\sqrt{3}\,\pi}(\cos(3)+\cos(6))-\right.\right.$$
$$\left.\left.3\cos(9)+e^{\sqrt{3}\,\pi}(2\cos(3)+2\cos(6)+3\cos(9))\right)\right)\Big/$$
$$\left(\left(e^{\sqrt{3}\,\pi}-1\right)\left(1+e^{\sqrt{3}\,\pi}\right)\left(1-e^{\sqrt{3}\,\pi}+e^{2\sqrt{3}\,\pi}\right)\right)+\csc(3)$$

Alternative representations:

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(3\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(6\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(9\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{1}{\cos\left(3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

Series representations:

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{2\sqrt{3}+6\,i\,\pi\sum_{k=1}^{\infty}q^{-1+2k}-3\,\pi\sum_{k=0}^{\infty}\frac{8(-9)^k\left(\frac{1}{1+e^{\sqrt{3}\,\pi}}-\frac{2^{1+2k}}{-1+e^{2\sqrt{3}\,\pi}}+\frac{3^{1+2k}}{1+e^{3\sqrt{3}\,\pi}}\right)}{(2k)!}}{3\,\pi}\quad\text{for}$$

$q=e^{3\,i}$

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{1}{3\pi}\left(2\sqrt{3}+6i\pi\sum_{k=1}^{\infty}q^{-1+2k}-\right.$$
$$\left.3\pi\sum_{k=0}^{\infty}\left(\frac{8(-1)^k\,3^{2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^{1+k}\,2^{4+2k}\times 3^{2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(2k)!}+\frac{8(-1)^k\,3^{1+4k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(2k)!}\right)\right)$$
for $q=e^{3i}$

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{1}{3\pi}\left(2\sqrt{3}-9\pi\sum_{k=-\infty}^{\infty}\frac{(-1)^k}{9-k^2\pi^2}-\right.$$
$$\left.3\pi\sum_{k=0}^{\infty}\left(\frac{8(-1)^k\,3^{2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^{1+k}\,2^{4+2k}\times 3^{2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(2k)!}+\frac{8(-1)^k\,3^{1+4k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(2k)!}\right)\right)$$

Integral representations:

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$\frac{8}{1+e^{\sqrt{3}\,\pi}}-\frac{16}{-1+e^{2\sqrt{3}\,\pi}}+\frac{24}{1+e^{3\sqrt{3}\,\pi}}-\frac{2}{\sqrt{3}\,\pi}+$$
$$\frac{1}{\pi}\int_0^{\infty}\frac{t^{3/\pi}}{t+t^2}\,dt+\int_0^1\left(-\frac{24\sin(3t)}{1+e^{\sqrt{3}\,\pi}}+\frac{96\sin(6t)}{-1+e^{2\sqrt{3}\,\pi}}-\frac{216\sin(9t)}{1+e^{3\sqrt{3}\,\pi}}\right)dt$$

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$-\frac{1}{3\pi}\left(2\sqrt{3}-3\pi\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(-\frac{4i\,e^{-\vartheta/(4s)+s}}{\left(1+e^{\sqrt{3}\,\pi}\right)\sqrt{\pi}\,\sqrt{s}}+\frac{8i\,e^{-\vartheta/s+s}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)\sqrt{\pi}\,\sqrt{s}}-\right.\right.$$
$$\left.\left.\frac{12i\,e^{-81/(4s)+s}}{\left(1+e^{3\sqrt{3}\,\pi}\right)\sqrt{\pi}\,\sqrt{s}}\right)ds-3\int_0^{\infty}\frac{t^{3/\pi}}{t+t^2}\,dt\right)\quad\text{for } \gamma>0$$

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=$$

$$-\frac{1}{3\pi}\left(2\sqrt{3}-3\int_0^\infty \frac{t^{3/\pi}}{t+t^2}\,dt-\right.$$

$$3\pi\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(-\frac{i\,2^{2+2s}\times 3^{-2s}\,\Gamma(s)}{\left(1+e^{\sqrt{3}\,\pi}\right)\sqrt{\pi}\;\Gamma\left(\frac{1}{2}-s\right)}+\frac{8\,i\,3^{-2s}\,\Gamma(s)}{\left(-1+e^{2\sqrt{3}\,\pi}\right)\sqrt{\pi}\;\Gamma\left(\frac{1}{2}-s\right)}-\right.$$

$$\left.\left.\frac{i\,2^{2+2s}\times 3^{1-4s}\,\Gamma(s)}{\left(1+e^{3\sqrt{3}\,\pi}\right)\sqrt{\pi}\;\Gamma\left(\frac{1}{2}-s\right)}\right)ds\right)\quad \text{for } 0<\gamma<\frac{1}{2}$$

$$\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)=-\frac{1}{3\pi}$$

$$\left(2\sqrt{3}-3\int_0^\infty \frac{t^{3/\pi}}{t+t^2}\,dt-3\pi\int_{\frac{\pi}{2}}^{9}\left(-\frac{24\sin(t)}{1+e^{3\sqrt{3}\,\pi}}+\frac{1}{9-\frac{\pi}{2}}\left(3-\frac{\pi}{2}\right)\left(-\frac{8\sin\left(\frac{-3\pi-3t+\frac{\pi t}{2}}{-9+\frac{\pi}{2}}\right)}{1+e^{\sqrt{3}\,\pi}}+\right.\right.\right.$$

$$\left.\left.\left.\frac{16\left(6-\frac{\pi}{2}\right)\sin\left(\frac{\frac{3\pi}{2}-\frac{6\left(-3\pi-3t+\frac{\pi t}{2}\right)}{-9+\frac{\pi}{2}}+\frac{\pi\left(-3\pi-3t+\frac{\pi t}{2}\right)}{2\left(-9+\frac{\pi}{2}\right)}}{-3+\frac{\pi}{2}}\right)}{\left(-1+e^{2\sqrt{3}\,\pi}\right)\left(3-\frac{\pi}{2}\right)}\right)\right)dt\right)$$

From which, we obtain:

(((1/(sin(3)) – 2/(Pi*sqrt3) + 8((((cos(3))/(e^(Pi*sqrt3)+1)))-((2cos(6)/(e^(2Pi*sqrt3)-1)))+((3cos(9)/(e^(3Pi*sqrt3)+1)))))))^Pi+76+29

Where 76 and 29 are Lucas numbers

Input:

$$\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(6)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29$$

Exact result:

$$105+\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(9)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(3)\right)^{\pi}$$

$\csc(x)$ is the cosecant function

Decimal approximation:

495.80443681957526773274424316001314323382888859159758452 91...

495.80443681… result very near to the rest mass of Kaon meson 497.614

Alternate forms:

$$105+\left(-\frac{2}{\sqrt{3}\,\pi}+\frac{8\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{16\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{24\cos(9)}{1+e^{3\sqrt{3}\,\pi}}-\frac{2\sin(3)}{\cos(6)-1}\right)^{\pi}$$

$$105+\left(-\frac{2\,i}{e^{-3\,i}-e^{3\,i}}+8\left(\frac{e^{-3\,i}+e^{3\,i}}{2\left(1+e^{\sqrt{3}\,\pi}\right)}-\frac{e^{-6\,i}+e^{6\,i}}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\left(e^{-9\,i}+e^{9\,i}\right)}{2\left(1+e^{3\sqrt{3}\,\pi}\right)}\right)-\frac{2}{\sqrt{3}\,\pi}\right)^{\pi}$$

$$105+3^{-\pi/2}\left(\left(e^{\sqrt{3}\,\pi}-1\right)\left(1+e^{\sqrt{3}\,\pi}\right)\right)^{-\pi}\left(\left(\csc(3)\left(e^{4\sqrt{3}\,\pi}\left(\sqrt{3}\,\pi-2\sin(3)\right)+2\sin(3)+e^{3\sqrt{3}\,\pi}\left(2\sin(3)+\sqrt{3}\,\pi\,(4\sin(6)-1)\right)-16\sqrt{3}\,e^{2\sqrt{3}\,\pi}\,\pi\sin(3)\,(\cos(3)+\cos(6))-\sqrt{3}\,\pi\,(1+4\sin(6)+8\sin(3)\,(2\cos(6)+3\cos(9)))+e^{\sqrt{3}\,\pi}\left(\sqrt{3}\,\pi\,(1+8\sin(6)+8\sin(3)\,(2\cos(6)+3\cos(9)))-2\sin(3)\right)\right)\right)\Big/\left(\left(1-e^{\sqrt{3}\,\pi}+e^{2\sqrt{3}\,\pi}\right)\pi\right)\right)^{\pi}$$

Alternative representations:

$$\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29=105+\left(\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}$$

$$\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29=105+\left(-\frac{1}{\cos\left(3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}$$

$$\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29=$$
$$105+\left(\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(3i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(6i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(9i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}$$

Series representations:

$$\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29=$$
$$105+\left(-\frac{2}{\sqrt{3}\,\pi}-2i\sum_{k=1}^{\infty}q^{-1+2k}+8\sum_{k=0}^{\infty}\frac{(-9)^k\left(\frac{1}{1+e^{\sqrt{3}\,\pi}}-\frac{2^{1+2k}}{-1+e^{2\sqrt{3}\,\pi}}+\frac{3^{1+2k}}{1+e^{3\sqrt{3}\,\pi}}\right)}{(2k)!}\right)^{\pi}\quad\text{for}\quad q=e^{3i}$$

$$\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29=$$
$$105+\left(-\frac{2}{\sqrt{3}\,\pi}+3\sum_{k=-\infty}^{\infty}\frac{(-1)^k}{9-k^2\pi^2}+8\sum_{k=0}^{\infty}\frac{(-9)^k\left(\frac{1}{1+e^{\sqrt{3}\,\pi}}-\frac{2^{1+2k}}{-1+e^{2\sqrt{3}\,\pi}}+\frac{3^{1+2k}}{1+e^{3\sqrt{3}\,\pi}}\right)}{(2k)!}\right)^{\pi}$$

$$\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29=$$
$$105+\left(-\frac{2}{\sqrt{3}\,\pi}-2i\sum_{k=1}^{\infty}q^{-1+2k}+8\sum_{k=0}^{\infty}\left(\frac{(-1)^k\,3^{2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^{1+k}\,2^{1+2k}\times 3^{2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^k\,3^{1+4k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(2k)!}\right)\right)^{\pi}\quad\text{for}\ q=e^{3i}$$

And:

1/Pi*(((((((1/(sin(3)) – 2/(Pi*sqrt3) + 8((((cos(3))/(e^(Pi*sqrt3)+1)))-((2cos(6)/(e^(2Pi*sqrt3)-1)))+((3cos(9)/(e^(3Pi*sqrt3)+1)))))))^Pi+76+29))))-18

Where 18 is a Lucas number

Input:

$$\frac{1}{\pi}\left(\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(6)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29\right)-18$$

Exact result:

$$\frac{105+\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(9)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(3)\right)^{\pi}}{\pi}-18$$

$\csc(x)$ is the cosecant function

Decimal approximation:

139.819453853457436434903668636700623553850492109348326362 2...

139.8194538… result practically equal to the rest mass of Pion meson 139.57

Alternate forms:

$$\frac{105-18\,\pi+\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(9)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(3)\right)^{\pi}}{\pi}$$

$$-18+\frac{105}{\pi}+\frac{\left(-\frac{2}{\sqrt{3}\,\pi}+\frac{8\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{16\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{24\cos(9)}{1+e^{3\sqrt{3}\,\pi}}-\frac{2\sin(3)}{\cos(6)-1}\right)^{\pi}}{\pi}$$

$$-18+\frac{105}{\pi}+\frac{\left(-\frac{2\,i}{e^{-3\,i}-e^{3\,i}}+8\left(\frac{e^{-3\,i}+e^{3\,i}}{2\left(1+e^{\sqrt{3}\,\pi}\right)}-\frac{e^{-6\,i}+e^{6\,i}}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\left(e^{-9\,i}+e^{9\,i}\right)}{2\left(1+e^{3\sqrt{3}\,\pi}\right)}\right)-\frac{2}{\sqrt{3}\,\pi}\right)^{\pi}}{\pi}$$

Alternative representations:

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29}{\pi}-18=$$

$$-18+\frac{105+\left(\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}}{\pi}$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29}{\pi}-18=$$

$$-18+\frac{105+\left(-\frac{1}{\cos\left(3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}}{\pi}$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29}{\pi}-18=$$
$$-18+\frac{105+\left(\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(3i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(6i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(9i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}}{\pi}$$

Series representations:

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29}{\pi}-18=$$
$$-\frac{1}{\pi}\left(-105+18\pi-\left(-\frac{2}{\sqrt{3}\,\pi}-2i\sum_{k=1}^{\infty}q^{-1+2k}+8\sum_{k=0}^{\infty}\frac{(-9)^k\left(\frac{1}{1+e^{\sqrt{3}\,\pi}}-\frac{2^{1+2k}}{-1+e^{2\sqrt{3}\,\pi}}+\frac{3^{1+2k}}{1+e^{3\sqrt{3}\,\pi}}\right)^{\pi}}{(2k)!}\right)\right)\quad\text{for } q=e^{3i}$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29}{\pi}-18=$$
$$-\frac{1}{\pi}\left(-105+18\pi-\left(-\frac{2}{\sqrt{3}\,\pi}-2i\sum_{k=1}^{\infty}q^{-1+2k}+8\sum_{k=0}^{\infty}\left(\frac{(-1)^k\,3^{2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^{1+k}\,2^{1+2k}\times 3^{2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^k\,3^{1+4k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(2k)!}\right)^{\pi}\right)\right)\quad\text{for } q=e^{3i}$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+76+29}{\pi}-18=$$
$$-\frac{1}{\pi}\left(-105+18\pi-\left(-\frac{2}{\sqrt{3}\,\pi}+3\sum_{k=-\infty}^{\infty}\frac{(-1)^k}{9-k^2\pi^2}+8\sum_{k=0}^{\infty}\left(\frac{(-1)^k\,3^{2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^{1+k}\,2^{1+2k}\times 3^{2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^k\,3^{1+4k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(2k)!}\right)^{\pi}\right)\right)$$

1/Pi*(((((((1/(sin(3)) – 2/(Pi*sqrt3) + 8((((cos(3))/(e^(Pi*sqrt3)+1)))-((2cos(6)/(e^(2Pi*sqrt3)-1)))+((3cos(9)/(e^(3Pi*sqrt3)+1)))))))^Pi+47))))-11-golden ratio^2

Where 11 and 47 are Lucas numbers

Input:

$$\frac{1}{\pi}\left(\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(6)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+47\right)-11-\phi^2$$

ϕ is the golden ratio

Exact result:

$$-\phi^2-11+\frac{47+\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(9)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(3)\right)^{\pi}}{\pi}$$

$\csc(x)$ is the cosecant function

Decimal approximation:

125.739446466047682637508565251123319440132864023649615445 3...

125.739446466… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternate forms:

$$-\frac{-94+25\,\pi+\sqrt{5}\,\pi-2\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(9)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(3)\right)^{\pi}}{2\,\pi}$$

$$-\frac{25}{2}-\frac{\sqrt{5}}{2}+\frac{47}{\pi}+\frac{\left(-\frac{2}{\sqrt{3}\,\pi}+\frac{8\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{16\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{24\cos(9)}{1+e^{3\sqrt{3}\,\pi}}-\frac{2\sin(3)}{\cos(6)-1}\right)^{\pi}}{\pi}$$

$$-\phi^2-11+\frac{47}{\pi}+\frac{\left(-\frac{2\,i}{e^{-3\,i}-e^{3\,i}}+8\left(\frac{e^{-3\,i}+e^{3\,i}}{2\left(1+e^{\sqrt{3}\,\pi}\right)}-\frac{e^{-6\,i}+e^{6\,i}}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\left(e^{-9\,i}+e^{9\,i}\right)}{2\left(1+e^{3\sqrt{3}\,\pi}\right)}\right)-\frac{2}{\sqrt{3}\,\pi}\right)^{\pi}}{\pi}$$

Expanded form:

$$-\frac{25}{2}-\frac{\sqrt{5}}{2}+\frac{47}{\pi}+\frac{\left(-\frac{2}{\sqrt{3}\,\pi}+8\left(\frac{\cos(3)}{1+e^{\sqrt{3}\,\pi}}-\frac{2\cos(6)}{e^{2\sqrt{3}\,\pi}-1}+\frac{3\cos(9)}{1+e^{3\sqrt{3}\,\pi}}\right)+\csc(3)\right)^{\pi}}{\pi}$$

Alternative representations:

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+47}{\pi}-11-\phi^2=$$

$$-11-\phi^2+\frac{47+\left(\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}}{\pi}$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+47}{\pi}-11-\phi^2=$$

$$-11-\phi^2+\frac{47+\left(-\frac{1}{\cos\left(3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-3i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-6i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-9i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}}{\pi}$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+47}{\pi}-11-\phi^2=$$

$$-11-\phi^2+\frac{47+\left(\frac{1}{\cos\left(-3+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(3i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(6i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(9i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{\pi}}{\pi}$$

Series representations:

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+47}{\pi}-11-\phi^2=$$

$$-\frac{1}{2\pi}\left(-94+25\pi+\sqrt{5}\,\pi-\right.$$

$$2\left(-\frac{2}{\sqrt{3}\,\pi}-2i\sum_{k=1}^{\infty}q^{-1+2k}+8\sum_{k=0}^{\infty}\left(\frac{(-1)^k\,3^{2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^{1+k}\,2^{1+2k}\times 3^{2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(2k)!}+\right.\right.$$

$$\left.\left.\left.\frac{(-1)^k\,3^{1+4k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(2k)!}\right)^{\pi}\right)\right)\quad\text{for } q=e^{3i}$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+47}{\pi}-11-\phi^2=$$

$$-\frac{1}{2\pi}\left(-94+25\pi+\sqrt{5}\,\pi-\right.$$

$$2\left(-\frac{2}{\sqrt{3}\,\pi}+3\sum_{k=-\infty}^{\infty}\frac{(-1)^k}{9-k^2\pi^2}+8\sum_{k=0}^{\infty}\left(\frac{(-1)^k\,3^{2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(2k)!}+\frac{(-1)^{1+k}\,2^{1+2k}\times 3^{2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(2k)!}+\right.\right.$$

$$\left.\left.\left.\frac{(-1)^k\,3^{1+4k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(2k)!}\right)\right)^{\pi}\right)$$

$$\frac{\left(\frac{1}{\sin(3)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(3)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(6)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(9)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{\pi}+47}{\pi}-11-\phi^2=$$

$$-\frac{1}{2\pi}\left(-94+25\pi+\sqrt{5}\,\pi-2\left(-\frac{2}{\sqrt{3}\,\pi}-2i\sum_{k=1}^{\infty}q^{-1+2k}+\right.\right.$$

$$\left.\left.8\sum_{k=0}^{\infty}\left(\frac{(-1)^{-1+k}\left(3-\frac{\pi}{2}\right)^{1+2k}}{\left(1+e^{\sqrt{3}\,\pi}\right)(1+2k)!}-\frac{2\,(-1)^{-1+k}\left(6-\frac{\pi}{2}\right)^{1+2k}}{\left(-1+e^{2\sqrt{3}\,\pi}\right)(1+2k)!}+\right.\right.\right.$$

$$\left.\left.\left.\frac{3\,(-1)^{-1+k}\left(9-\frac{\pi}{2}\right)^{1+2k}}{\left(1+e^{3\sqrt{3}\,\pi}\right)(1+2k)!}\right)\right)^{\pi}\right)\quad\text{for } q=e^{3i}$$

For θ = 2.399963, (that is the “golden angle” in radians) we obtain:

1/(sin(2*2.399963)) – 2/(Pi*sqrt3) + 8((((cos(2*2.399963))/(e^(Pi*sqrt3)+1)))-((2cos(4*2.399963)/(e^(2Pi*sqrt3)-1)))+((3cos(6*2.399963)/(e^(3Pi*sqrt3)+1))))

Input interpretation:

$$\frac{1}{\sin(2\times 2.399963)}-\frac{2}{\pi\sqrt{3}}+$$
$$8\left(\frac{\cos(2\times 2.399963)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(4\times 2.399963)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(6\times 2.399963)}{e^{3\pi\sqrt{3}}+1}\right)$$

Result:

$-1.368083\ldots$

-1.368083…

Alternative representations:

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{1}{\cos\left(-4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{1}{\cos\left(-4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=-\frac{1}{\cos\left(4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}$$

Series representations:

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{8\sum_{k=0}^{\infty}\frac{(-1)^k e^{3.1372k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\frac{16\sum_{k=0}^{\infty}\frac{(-1)^k e^{4.5235k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+\frac{24\sum_{k=0}^{\infty}\frac{(-1)^k e^{5.33443k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k 4.79993^{1+2k}}{(1+2k)!}}-\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\quad\text{for}\ (x\in\mathbb{R}\ \text{and}\ x<0)$$

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}+\frac{8\sum_{k=0}^{\infty}\frac{(-1)^k e^{3.1372k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\frac{16\sum_{k=0}^{\infty}\frac{(-1)^k e^{4.5235k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+\frac{24\sum_{k=0}^{\infty}\frac{(-1)^k e^{5.33443k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\quad\text{for}\ (x\in\mathbb{R}\ \text{and}\ x<0)$$

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{8\sum_{k=0}^{\infty}\frac{(-1)^k e^{3.1372k}}{(2k)!}}{1+\exp\left(\pi\left(\frac{1}{z_0}\right)^{1/2\,[\arg(3-z_0)/(2\pi)]}z_0^{1/2\,(1+[\arg(3-z_0)/(2\pi)])}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(3-z_0)^k z_0^{-k}}{k!}\right)}-\frac{16\sum_{k=0}^{\infty}\frac{(-1)^k e^{4.5235k}}{(2k)!}}{-1+\exp\left(2\pi\left(\frac{1}{z_0}\right)^{1/2\,[\arg(3-z_0)/(2\pi)]}z_0^{1/2\,(1+[\arg(3-z_0)/(2\pi)])}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(3-z_0)^k z_0^{-k}}{k!}\right)}+\frac{24\sum_{k=0}^{\infty}\frac{(-1)^k e^{5.33443k}}{(2k)!}}{1+\exp\left(3\pi\left(\frac{1}{z_0}\right)^{1/2\,[\arg(3-z_0)/(2\pi)]}z_0^{1/2\,(1+[\arg(3-z_0)/(2\pi)])}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(3-z_0)^k z_0^{-k}}{k!}\right)}+\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k 4.79993^{1+2k}}{(1+2k)!}}-\frac{2\left(\frac{1}{z_0}\right)^{-1/2\,[\arg(3-z_0)/(2\pi)]}z_0^{1/2\,(-1-[\arg(3-z_0)/(2\pi)])}}{\pi\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k(3-z_0)^k z_0^{-k}}{k!}}$$

Integral representations:

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{8}{1+e^{\pi\sqrt{3}}}-\frac{16}{-1+e^{2\pi\sqrt{3}}}+\frac{24}{1+e^{3\pi\sqrt{3}}}+\frac{0.208337}{\int_0^1\cos(4.79993\,t)\,dt}+\int_0^1\left(-\frac{38.3994\sin(4.79993\,t)}{1+e^{\pi\sqrt{3}}}+\frac{153.598\sin(9.59985\,t)}{-1+e^{2\pi\sqrt{3}}}-\frac{345.595\sin(14.3998\,t)}{1+e^{3\pi\sqrt{3}}}\right)dt-\frac{2}{\pi\sqrt{3}}$$

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=\frac{8}{1+e^{\pi\sqrt{3}}}-\frac{16}{-1+e^{2\pi\sqrt{3}}}+\frac{24}{1+e^{3\pi\sqrt{3}}}+\int_0^1\left(-\frac{38.3994\sin(4.79993\,t)}{1+e^{\pi\sqrt{3}}}+\frac{153.598\sin(9.59985\,t)}{-1+e^{2\pi\sqrt{3}}}-\frac{345.595\sin(14.3998\,t)}{1+e^{3\pi\sqrt{3}}}\right)dt-\frac{2}{\pi\sqrt{3}}+\frac{0.833346\,i\pi}{\sqrt{\pi}\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\mathcal{R}^{-5.75982/s+s}}{s^{3/2}}\,ds}\quad\text{for }\gamma>0$$

$$\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)=$$
$$\left(-2\int_0^1\cos(4.79993\,t)\,dt+0.208337\,\pi\sqrt{3}+\pi\left(\int_0^1\cos(4.79993\,t)\,dt\right)\left(\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(\frac{12\,\mathcal{A}^{-51.8384/s+s}\sqrt{\pi}}{\left(1+e^{3\pi\sqrt{3}}\right)i\pi\sqrt{s}}-\frac{8\,\mathcal{A}^{-23.0393/s+s}\sqrt{\pi}}{\left(-1+e^{2\pi\sqrt{3}}\right)i\pi\sqrt{s}}+\frac{4\,\mathcal{A}^{-5.75982/s+s}\sqrt{\pi}}{\left(1+e^{\pi\sqrt{3}}\right)i\pi\sqrt{s}}\right)ds\right)\sqrt{3}\right)\Big/\left(\pi\sqrt{3}\int_0^1\cos(4.79993\,t)\,dt\right)\ \text{for}\ \gamma>0$$

And:

-1/(((1/(sin(2*2.399963)) – 2/(Pi*sqrt3) + 8((((cos(2*2.399963))/(e^(Pi*sqrt3)+1)))-((2cos(4*2.399963)/(e^(2Pi*sqrt3)-1)))+((3cos(6*2.399963)/(e^(3Pi*sqrt3)+1)))))))^1/32

Input interpretation:

$$-\frac{1}{\sqrt[32]{\frac{1}{\sin(2\times 2.399963)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.399963)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(4\times 2.399963)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(6\times 2.399963)}{e^{3\pi\sqrt{3}}+1}\right)}}$$

Result:

$-0.98548538\ldots+0.097061838\ldots\,i$

Polar coordinates:

$r = 0.990254$ (radius), $\theta = 174.375°$ (angle)

0.990254 result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1}=1-\cfrac{e^{-\pi\sqrt{5}}}{1+\cfrac{e^{-2\pi\sqrt{5}}}{1+\cfrac{e^{-3\pi\sqrt{5}}}{1+\cfrac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}}\approx 0.9991104684$$

and to the dilaton value $\mathbf{0.989117352243 = \phi}$

Series representations:

$$-\frac{1}{\sqrt[32]{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}}=$$

$$-\left(1\Big/\left(\left(\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}+\right.\right.\right.$$

$$8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\right.$$

$$\frac{2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+$$

$$\left.\left.\left.\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)-\right.\right.$$

$$\left.\left.\left.\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)^{\wedge}\right.\right.$$

$$\left.\left.(1/32)\right)\right)\quad \text{for } (x\in\mathbb{R} \text{ and } x<0)$$

$$-\frac{1}{\sqrt[32]{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}}=$$

$$-\left(1\Big/\left(\left(8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\right.\right.\right.$$

$$\left.\left.\left.\frac{2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+\right.\right.\right.$$

$$\left.\left.\left.\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+\right.\right.\right.$$

$$\left.\left.\left.\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{1+2k}}{(1+2k)!}}-\right.\right.\right.$$

$$\left.\left.\left.\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)\right)^{\wedge}\right.$$

$$\left.\left.(1/32)\right)\right)\quad \text{for } (x\in\mathbb{R} \text{ and } x<0)$$

$$-\frac{1}{\sqrt[32]{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}}=$$

$$-\left(1\Big/\left(\left(8\left(\frac{J_0(4.79993)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(4.79993)}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\right.\right.\right.$$

$$\left.\left.\left.\frac{2\left(J_0(9.59985)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(9.59985)\right)}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+\right.\right.\right.$$

$$\left.\left.\left.\frac{3\left(J_0(14.3998)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(14.3998)\right)}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)+\right.\right.$$

$$\left.\left.\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}-\right.\right.$$

$$\left.\left.\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)\wedge\right.$$

$$\left.(1/32)\right)\Big)\quad\text{for}\ (x\in\mathbb{R}\ \text{and}\ x<0)$$

Integral representations:

$$-\frac{1}{\sqrt[32]{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}}=$$

$$-\left(1\Big/\left(\left(\frac{0.208337}{\int_0^1\cos(4.79993\,t)\,dt}+8\left(\frac{1-4.79993\int_0^1\sin(4.79993\,t)\,dt}{1+e^{\pi\sqrt{3}}}-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{2\left(1-9.59985\int_0^1\sin(9.59985\,t)\,dt\right)}{-1+e^{2\pi\sqrt{3}}}+\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{3\left(1-14.3998\int_0^1\sin(14.3998\,t)\,dt\right)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)\wedge(1/32)\right)\right)$$

$$-\frac{1}{\sqrt[32]{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}}=$$

$$-\left(1\Big/\left(\left(\frac{0.208337}{\int_0^1\cos(4.79993\,t)\,dt}+\right.\right.\right.$$

$$\left.\left.\left.8\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(\frac{3\,\mathcal{A}^{-51.8384/s+s}\sqrt{\pi}}{2\left(1+e^{3\pi\sqrt{3}}\right)i\pi\sqrt{s}}-\frac{\mathcal{A}^{-23.0393/s+s}\sqrt{\pi}}{\left(-1+e^{2\pi\sqrt{3}}\right)i\pi\sqrt{s}}+\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{\mathcal{A}^{-5.75982/s+s}\sqrt{\pi}}{2\left(1+e^{\pi\sqrt{3}}\right)i\pi\sqrt{s}}\right)ds-\frac{2}{\pi\sqrt{3}}\right)\text{^}(1/32)\right)\right)\quad\text{for }\gamma>0$$

$$-\frac{1}{\sqrt[32]{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}}=$$

$$-\left(1\Big/\left(\left(\frac{0.208337}{\int_0^1\cos(4.79993\,t)\,dt}+8\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(\frac{2.39996^{-2s}\,\Gamma(s)\sqrt{\pi}}{2\left(1+e^{\pi\sqrt{3}}\right)i\pi\,\Gamma\left(\frac{1}{2}-s\right)}-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{4.79993^{-2s}\,\Gamma(s)\sqrt{\pi}}{\left(-1+e^{2\pi\sqrt{3}}\right)i\pi\,\Gamma\left(\frac{1}{2}-s\right)}+\frac{3\times 7.19989^{-2s}\,\Gamma(s)\sqrt{\pi}}{2\left(1+e^{3\pi\sqrt{3}}\right)i\pi\,\Gamma\left(\frac{1}{2}-s\right)}\right)\right.\right.\right.$$

$$\left.\left.ds-\frac{2}{\pi\sqrt{3}}\right)\text{^}(1/32)\right)\right)\quad\text{for }0<\gamma<\frac{1}{2}$$

4log base 0.990254 (((-1/(((1/(sin(2*2.399963)) – 2/(Pi*sqrt3) + 8((((cos(2*2.399963))/(e^(Pi*sqrt3)+1)))-((2cos(4*2.399963)/(e^(2Pi*sqrt3)-1)))+((3cos(6*2.399963)/(e^(3Pi*sqrt3)+1))))))))))

Input interpretation:

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.399963)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.399963)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(4\times 2.399963)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(6\times 2.399963)}{e^{3\pi\sqrt{3}}+1}\right)}\right)$$

Result:

128.004...

128.004…

Alternative representations:

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=\frac{4\log\left(-\frac{1}{8\left(\frac{\cos(4.79993)}{1+e^{\pi\sqrt{3}}}-\frac{2\cos(9.59985)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cos(14.3998)}{1+e^{3\pi\sqrt{3}}}\right)+\frac{1}{\sin(4.79993)}-\frac{2}{\pi\sqrt{3}}}\right)}{\log(0.990254)}$$

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=4\log_{0.990254}\left(-\frac{1}{\frac{1}{\cos\left(-4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}}\right)$$

$$4 \log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=4\log_{0.990254}\left(-\frac{1}{-\frac{1}{\cos\left(4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}}\right)$$

Series representations:

$$4 \log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=-\frac{4\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1-\frac{1}{8\left(\frac{\cos(4.79993)}{1+e^{\pi\sqrt{3}}}-\frac{2\cos(9.59985)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cos(14.3998)}{1+e^{3\pi\sqrt{3}}}\right)+\frac{1}{\sin(4.79993)}-\frac{2}{\pi\sqrt{3}}}\right)^k}{k}}{\log(0.990254)}$$

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=$$

$$4\log_{0.990254}\left(-\left(1\Big/\left(\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}+\right.\right.\right.$$

$$8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\right.$$

$$\frac{2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+$$

$$\left.\left.\left.\left.\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)-\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)\right)\right)\right)$$

for $(x\in\mathbb{R}$ and $x<0)$

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=$$

$$4\log_{0.990254}\left(\left(-\left(1\Big/\left(8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)\right)\right)+\right.$$

$$\left.\left.\left.\left.\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{1+2k}}{(1+2k)!}}-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)\right)\right)\right)$$

for $(x\in\mathbb{R}$ and $x<0)$

Integral representations:

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=$$

$$4\log_{0.990254}\left(\left(-\left(1\Big/\left(\frac{0.208337}{\int_0^1\cos(4.79993\,t)\,dt}+8\left(\frac{1-4.79993\int_0^1\sin(4.79993\,t)\,dt}{1+e^{\pi\sqrt{3}}}-\right.\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\left.\frac{2\left(1-9.59985\int_0^1\sin(9.59985\,t)\,dt\right)}{-1+e^{2\pi\sqrt{3}}}+\right.\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\left.\frac{3\left(1-14.3998\int_0^1\sin(14.3998\,t)\,dt\right)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)\right)\right)\right)$$

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=$$

$$4\log_{0.990254}\left(-\left(1\Big/\left(\frac{0.208337}{\int_0^1\cos(4.79993\,t)\,dt}+\right.\right.\right.$$

$$8\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(\frac{3\,\mathcal{A}^{-51.8384/s+s}\sqrt{\pi}}{2\left(1+e^{3\pi\sqrt{3}}\right)i\pi\sqrt{s}}-\frac{\mathcal{A}^{-23.0393/s+s}\sqrt{\pi}}{\left(-1+e^{2\pi\sqrt{3}}\right)i\pi\sqrt{s}}+\right.$$

$$\left.\left.\left.\left.\frac{\mathcal{A}^{-5.75982/s+s}\sqrt{\pi}}{2\left(1+e^{\pi\sqrt{3}}\right)i\pi\sqrt{s}}\right)ds-\frac{2}{\pi\sqrt{3}}\right)\right)\right)\text{ for }\gamma>0$$

$$4\log_{0.990254}\left(-\frac{1}{\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)}\right)=$$

$$4\log_{0.990254}\left(-\left(1\Big/\left(\frac{0.208337}{\int_0^1\cos(4.79993\,t)\,dt}+\right.\right.\right.$$

$$8\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(\frac{2.39996^{-2\,s}\,\Gamma(s)\sqrt{\pi}}{2\left(1+e^{\pi\sqrt{3}}\right)i\pi\,\Gamma\left(\frac{1}{2}-s\right)}-\frac{4.79993^{-2\,s}\,\Gamma(s)\sqrt{\pi}}{\left(-1+e^{2\pi\sqrt{3}}\right)i\pi\,\Gamma\left(\frac{1}{2}-s\right)}+\right.$$

$$\left.\left.\left.\left.\frac{3\times 7.19989^{-2\,s}\,\Gamma(s)\sqrt{\pi}}{2\left(1+e^{3\pi\sqrt{3}}\right)i\pi\,\Gamma\left(\frac{1}{2}-s\right)}\right)ds-\frac{2}{\pi\sqrt{3}}\right)\right)\right)\text{ for }0<\gamma<\frac{1}{2}$$

From which:

(128.00363329482)-Pi+1/golden ratio

Input interpretation:

$$128.00363329482 - \pi + \frac{1}{\phi}$$

Result:

125.48007462998...

125.48007462998… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representations:

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 - \pi + -\frac{1}{2\cos(216^\circ)}$$

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 - 180^\circ + -\frac{1}{2\cos(216^\circ)}$$

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 - \pi + \frac{1}{2\cos\left(\frac{\pi}{5}\right)}$$

Series representations:

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 + \frac{1}{\phi} - 4\sum_{k=0}^{\infty}\frac{(-1)^k}{1+2k}$$

$$128.003633294820000 - \pi + \frac{1}{\phi} = 130.003633294820000 + \frac{1}{\phi} - 2\sum_{k=1}^{\infty}\frac{2^k}{\binom{2k}{k}}$$

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 + \frac{1}{\phi} - \sum_{k=0}^{\infty}\frac{2^{-k}(-6+50k)}{\binom{3k}{k}}$$

Integral representations:

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 + \frac{1}{\phi} - 2\int_0^\infty \frac{1}{1+t^2}\,dt$$

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 + \frac{1}{\phi} - 4\int_0^1 \sqrt{1-t^2}\,dt$$

$$128.003633294820000 - \pi + \frac{1}{\phi} = 128.003633294820000 + \frac{1}{\phi} - 2\int_0^\infty \frac{\sin(t)}{t}\,dt$$

and, we obtain also:

(128.00363329482)+11+1/golden ratio

Input interpretation:

$$128.00363329482 + 11 + \frac{1}{\phi}$$

Result:

139.62166728357...

139.62166728357… result practically equal to the rest mass of Pion meson 139.57

Alternative representations:

$$128.003633294820000 + 11 + \frac{1}{\phi} = 139.003633294820000 + \frac{1}{2\sin(54^\circ)}$$

$$128.003633294820000 + 11 + \frac{1}{\phi} = 139.003633294820000 + -\frac{1}{2\cos(216^\circ)}$$

$$128.003633294820000 + 11 + \frac{1}{\phi} = 139.003633294820000 + -\frac{1}{2\sin(666^\circ)}$$

[(((((1/(sin(2*2.399963)) – 2/(Pi*sqrt3) + 8((((cos(2*2.399963))/(e^(Pi*sqrt3)+1)))-((2cos(4*2.399963)/(e^(2Pi*sqrt3)-1)))+((3cos(6*2.399963)/(e^(3Pi*sqrt3)+1)))))))))^24]-123+4

Where 123 and 4 are Lucas numbers

Input interpretation:

$$\left(\frac{1}{\sin(2\times 2.399963)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.399963)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(4\times 2.399963)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(6\times 2.399963)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4$$

Result:

1728.990823828231211872517029996733892568456096332092594682...

1728.990823…

This result is very near to the mass of candidate glueball $f_0(1710)$ meson. Furthermore, 1728 occurs in the algebraic formula for the j-invariant of an elliptic curve. As a consequence, it is sometimes called a Zagier as a pun on the Gross–Zagier theorem. The number 1728 is one less than the Hardy–Ramanujan number 1729

Alternative representations:

$$\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4=-119+\left(\frac{1}{\cos\left(-4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{24}$$

$$\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4=-119+\left(\frac{1}{\cos\left(-4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{24}$$

$$\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-$$
$$123+4=-119+\left(-\frac{1}{\cos\left(4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{24}$$

Series representations:

$$\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-$$
$$123+4=-119+\left(\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}+8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\frac{2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)-\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)^{24}$$

for $(x\in\mathbb{R}$ and $x<0)$

$$\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-$$

$$123+4=-119+\left(8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\right.\right.$$

$$\frac{2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+$$

$$\left.\left.\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)+\right.$$

$$\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{1+2k}}{(1+2k)!}}-$$

$$\left.\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)^{24}$$

for $(x\in\mathbb{R}$ and $x<0)$

$$\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-$$

$$123+4=-119+\left(8\left(\frac{J_0(4.79993)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(4.79993)}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\right.\right.$$

$$\frac{2\left(J_0(9.59985)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(9.59985)\right)}{-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}+$$

$$\left.\left.\frac{3\left(J_0(14.3998)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(14.3998)\right)}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)+\right.$$

$$\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}-$$

$$\left.\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)^{24}$$

for $(x\in\mathbb{R}$ and $x<0)$

We have also:

1/13*(((([((((1/(sin(2*2.399963)) – 2/(Pi*sqrt3) + 8((((cos(2*2.399963))/(e^(Pi*sqrt3)+1)))-((2cos(4*2.399963)/(e^(2Pi*sqrt3)-1)))+((3cos(6*2.399963)/(e^(3Pi*sqrt3)+1)))))))))^24]-123+4))))+2Pi

Input interpretation:

$$\frac{1}{13}\left(\left(\frac{1}{\sin(2\times 2.399963)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.399963)}{e^{\pi\sqrt{3}}+1}-2\times\frac{\cos(4\times 2.399963)}{e^{2\pi\sqrt{3}}-1}+3\times\frac{\cos(6\times 2.399963)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4\right)+2\pi$$

Result:

139.282...

139.282… result practically equal to the rest mass of Pion meson 139.57

Alternative representations:

$$\frac{1}{13}\left(\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4\right)+2\pi=$$
$$2\pi+\frac{1}{13}\left(-119+\left(\frac{1}{\cos\left(-4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{24}\right)$$

$$\frac{1}{13}\left(\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4\right)+2\pi=$$
$$2\pi+\frac{1}{13}\left(-119+\left(\frac{1}{\cos\left(-4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{24}\right)$$

$$\frac{1}{13}\left(\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4\right)+2\pi=$$
$$2\pi+\frac{1}{13}\left(-119+\left(-\frac{1}{\cos\left(4.79993+\frac{\pi}{2}\right)}+8\left(\frac{\cosh(-4.79993\,i)}{1+e^{\pi\sqrt{3}}}-\frac{2\cosh(-9.59985\,i)}{-1+e^{2\pi\sqrt{3}}}+\frac{3\cosh(-14.3998\,i)}{1+e^{3\pi\sqrt{3}}}\right)-\frac{2}{\pi\sqrt{3}}\right)^{24}\right)$$

Series representations:

$$\frac{1}{13}\left(\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4\right)+$$

$$2\pi = 2\pi+\frac{1}{13}\left(-119+\left(\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}+8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\left(2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}\right)\Big/\left(-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)+\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)-\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\ \sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)^{24}\right)\quad\text{for}\ (x\in\mathbb{R}\ \text{and}\ x<0)$$

$$\frac{1}{13}\left(\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4\right)+2\pi=$$

$$2\pi+\frac{1}{13}\left(-119+\left(8\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{2k}}{(2k)!}}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\;\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\left(2\sum_{k=0}^{\infty}\frac{(-1)^k\,9.59985^{2k}}{(2k)!}\right)\Big/\left(-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\;\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)+\frac{3\sum_{k=0}^{\infty}\frac{(-1)^k\,14.3998^{2k}}{(2k)!}}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\;\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)+\frac{1}{\sum_{k=0}^{\infty}\frac{(-1)^k\,4.79993^{1+2k}}{(1+2k)!}}-\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\;\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)^{24}\right)\quad\text{for}\ (x\in\mathbb{R}$$

and $x<0$)

$$\frac{1}{13}\left(\left(\frac{1}{\sin(2\times 2.39996)}-\frac{2}{\pi\sqrt{3}}+8\left(\frac{\cos(2\times 2.39996)}{e^{\pi\sqrt{3}}+1}-\frac{2\cos(4\times 2.39996)}{e^{2\pi\sqrt{3}}-1}+\frac{3\cos(6\times 2.39996)}{e^{3\pi\sqrt{3}}+1}\right)\right)^{24}-123+4\right)+2\pi=$$

$$2\pi+\frac{1}{13}\left(-119+\left(8\left(\frac{J_0(4.79993)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(4.79993)}{1+\exp\left(\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}-\left(2\left(J_0(9.59985)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(9.59985)\right)\right)\Big/\left(-1+\exp\left(2\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)+\frac{3\left(J_0(14.3998)+2\sum_{k=1}^{\infty}(-1)^k J_{2k}(14.3998)\right)}{1+\exp\left(3\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)}\right)+\frac{1}{2\sum_{k=0}^{\infty}(-1)^k J_{1+2k}(4.79993)}-\frac{2}{\pi\exp\left(i\pi\left\lfloor\frac{\arg(3-x)}{2\pi}\right\rfloor\right)\sqrt{x}\sum_{k=0}^{\infty}\frac{(-1)^k(3-x)^k x^{-k}\left(-\frac{1}{2}\right)_k}{k!}}\right)^{24}\right)\quad\text{for}\ (x\in\mathbb{R}$$

and $x<0$)

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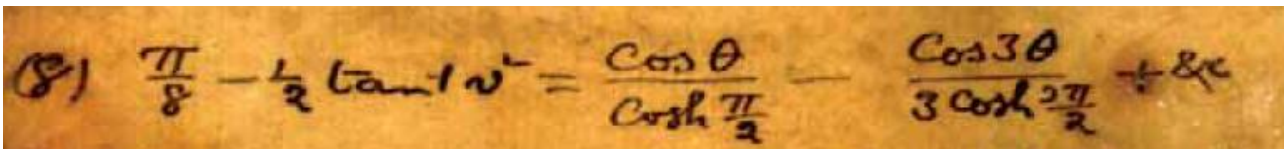


For θ = 2.399963, (that is the “golden angle” in radians) we obtain:

cos (2.399963) / cosh(Pi/2) – cos (3*2.399963) / ((3cosh (3*Pi/2)))

Input interpretation:

$$\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.399963)}{3\cosh\left(3\times\frac{\pi}{2}\right)}$$

$\cosh(x)$ is the hyperbolic cosine function

Result:

−0.2975121...

-0.2975121…

Alternative representations:

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)} = \frac{\cosh(-2.39996\,i)}{\cos\left(\frac{i\pi}{2}\right)} - \frac{\cosh(-7.19989\,i)}{3\cos\left(\frac{3i\pi}{2}\right)}$$

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)} = \frac{e^{-2.39996i} + e^{2.39996i}}{2\cos\left(\frac{i\pi}{2}\right)} - \frac{e^{-7.19989i} + e^{7.19989i}}{2\left(3\cos\left(\frac{3i\pi}{2}\right)\right)}$$

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)} = \frac{\cosh(2.39996\,i)}{\cos\left(-\frac{i\pi}{2}\right)} - \frac{\cosh(7.19989\,i)}{3\cos\left(-\frac{3i\pi}{2}\right)}$$

Series representations:

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)} = -\frac{-3\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\left(\frac{9}{4}\right)^{k_2}e^{1.75091\,k_1}\,\pi^{2k_2}}{(2k_1)!\,(2k_2)!} + \sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\,4^{-k_2}\,e^{3.94813\,k_1}\,\pi^{2k_2}}{(2k_1)!\,(2k_2)!}}{3\left(\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^{k}\pi^{2k}}{(2k)!}\right)\sum_{k=0}^{\infty}\frac{4^{-k}\,\pi^{2k}}{(2k)!}}$$

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}=\left(-\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\ e^{3.94813\,k_1}\left(\frac{\pi}{2}-\frac{i\pi}{2}\right)^{1+2k_2}}{(2k_1)!\,(1+2k_2)!}+3\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\ e^{1.75091\,k_1}\left(\frac{3\pi}{2}-\frac{i\pi}{2}\right)^{1+2k_2}}{(2k_1)!\,(1+2k_2)!}\right)\Bigg/\left(3i\left(\sum_{k=0}^{\infty}\frac{\left(\frac{\pi}{2}-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)\sum_{k=0}^{\infty}\frac{\left(\frac{3\pi}{2}-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}\right)$$

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}=$$
$$-\left(\left(-3J_0(2.39996)\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^k\pi^{2k}}{(2k)!}+J_0(7.19989)\sum_{k=0}^{\infty}\frac{4^{-k}\pi^{2k}}{(2k)!}-6\sum_{k_1=1}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\left(\frac{9}{4}\right)^{k_2}\pi^{2k_2}J_{2k_1}(2.39996)}{(2k_2)!}+2\sum_{k_1=1}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\,4^{-k_2}\pi^{2k_2}J_{2k_1}(7.19989)}{(2k_2)!}\right)\Bigg/\left(3\left(\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^k\pi^{2k}}{(2k)!}\right)\sum_{k=0}^{\infty}\frac{4^{-k}\pi^{2k}}{(2k)!}\right)\right)$$

Integral representations:

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}=\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^s\left(\frac{3\,e^{-1.43996/s}}{\pi\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}-\frac{e^{-12.9596/s}}{\frac{3\pi}{2}\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}\right)\sqrt{\pi}}{6\,i\,\pi\sqrt{s}}\,ds\quad\text{for }\gamma>0$$

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}=\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)\left(\frac{3\,e^{-0.364612\,s}}{\pi\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}-\frac{e^{-2.56184\,s}}{\frac{3\pi}{2}\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}\right)\sqrt{\pi}}{6\,i\,\pi\,\Gamma\left(\frac{1}{2}-s\right)}\,ds$$

$$\text{for } 0<\gamma<\frac{1}{2}$$

$$\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)} = \int_{-i\infty+\gamma}^{i\infty+\gamma}\left(\frac{e^{-1.43996/s+s}\sqrt{\pi}}{2i\pi\sqrt{s}\left(1+\frac{\pi}{2}\int_0^1\sinh\left(\frac{\pi t}{2}\right)dt\right)} - \frac{e^{-12.9596/s+s}\sqrt{\pi}}{6i\pi\sqrt{s}\left(1+\frac{3\pi}{2}\int_0^1\sinh\left(\frac{3\pi t}{2}\right)dt\right)}\right)ds \quad \text{for}$$

$\gamma > 0$

From which:

-Pi*((((cos (2.399963) / cosh(Pi/2) – cos (3*2.399963) / ((3cosh (3*Pi/2)))))))

Input interpretation:

$$-\pi\left(\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.399963)}{3\cosh\left(3\times\frac{\pi}{2}\right)}\right)$$

$\cosh(x)$ is the hyperbolic cosine function

Result:

0.9346620...

0.9346620… result very near to the spectral index n_s , to the mesonic Regge slope, to the inflaton value at the end of the inflation 0.9402 (see Appendix) and to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{5}}}{\sqrt{(\varphi-1)\sqrt{5}}-\varphi+1} = 1-\cfrac{e^{-\pi}}{1+\cfrac{e^{-2\pi}}{1+\cfrac{e^{-3\pi}}{1+\cfrac{e^{-4\pi}}{1+\ldots}}}} \approx 0.9568666373$$

From:

Astronomy & Astrophysics manuscript no. ms c ESO 2019 - September 24, 2019
Planck 2018 results. VI. Cosmological parameters

The primordial fluctuations are consistent with Gaussian purely adiabatic scalar perturbations characterized by a power spectrum with a spectral index $n_s = 0.965 \pm 0.004$, consistent with the predictions of slow-roll, single-field, inflation.

We know that α' is the Regge slope (string tension). With regard the Omega mesons, the values are:

$$\omega \quad | \quad 6 \quad | \quad m_{u/d} = 0 - 60 \quad | \quad 0.910 - 0.918$$

$$\omega/\omega_3 \quad | \quad 5+3 \quad | \quad m_{u/d}' = 255 - 390 \quad | \quad 0.988 - 1.18$$

$$\omega/\omega_3 \quad | \quad 5+3 \quad | \quad m_{u/d} = 240 - 345 \quad | \quad 0.937 - 1.000$$

Input interpretation:

938 MeV (megaelectronvolts)

Unit conversions:

0.938 GeV (gigaelectronvolts)

0.938 GeV result practically equal to the proton mass in GeV

Alternative representations:

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right) = -\pi\left(\frac{\cosh(-2.39996\,i)}{\cos\left(\frac{i\pi}{2}\right)} - \frac{\cosh(-7.19989\,i)}{3\cos\left(\frac{3i\pi}{2}\right)}\right)$$

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right) = -\pi\left(\frac{e^{-2.39996\,i} + e^{2.39996\,i}}{2\cos\left(\frac{i\pi}{2}\right)} - \frac{e^{-7.19989\,i} + e^{7.19989\,i}}{2\left(3\cos\left(\frac{3i\pi}{2}\right)\right)}\right)$$

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)} - \frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right) = -\pi\left(\frac{\cosh(2.39996\,i)}{\cos\left(-\frac{i\pi}{2}\right)} - \frac{\cosh(7.19989\,i)}{3\cos\left(-\frac{3i\pi}{2}\right)}\right)$$

Series representations:

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)=$$
$$\frac{\pi\left(-3\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\left(\frac{9}{4}\right)^{k_2}e^{1.75091\,k_1}\,\pi^{2\,k_2}}{(2\,k_1)!\,(2\,k_2)!}+\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\,4^{-k_2}\,e^{3.94813\,k_1}\,\pi^{2\,k_2}}{(2\,k_1)!\,(2\,k_2)!}\right)}{3\left(\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^{k}\pi^{2\,k}}{(2\,k)!}\right)\sum_{k=0}^{\infty}\frac{4^{-k}\,\pi^{2\,k}}{(2\,k)!}}$$

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)=$$
$$-\left(\left(\pi\left(-\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\,e^{3.94813\,k_1}\left(\frac{\pi}{2}-\frac{i\,\pi}{2}\right)^{1+2\,k_2}}{(2\,k_1)!\,(1+2\,k_2)!}+\right.\right.\right.$$
$$\left.\left.\left.3\sum_{k_1=0}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\,e^{1.75091\,k_1}\left(\frac{3\pi}{2}-\frac{i\,\pi}{2}\right)^{1+2\,k_2}}{(2\,k_1)!\,(1+2\,k_2)!}\right)\right)\Bigg/$$
$$\left(3\,i\left(\sum_{k=0}^{\infty}\frac{\left(\frac{\pi}{2}-\frac{i\,\pi}{2}\right)^{1+2\,k}}{(1+2\,k)!}\right)\sum_{k=0}^{\infty}\frac{\left(\frac{3\pi}{2}-\frac{i\,\pi}{2}\right)^{1+2\,k}}{(1+2\,k)!}\right)$$

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)=$$
$$\left(\pi\left(-3\,J_0(2.39996)\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^{k}\pi^{2\,k}}{(2\,k)!}+J_0(7.19989)\sum_{k=0}^{\infty}\frac{4^{-k}\,\pi^{2\,k}}{(2\,k)!}-\right.\right.$$
$$6\sum_{k_1=1}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\left(\frac{3}{2}\right)^{2\,k_2}\pi^{2\,k_2}\,J_{2\,k_1}(2.39996)}{(2\,k_2)!}+$$
$$\left.\left.2\sum_{k_1=1}^{\infty}\sum_{k_2=0}^{\infty}\frac{(-1)^{k_1}\,2^{-2\,k_2}\,\pi^{2\,k_2}\,J_{2\,k_1}(7.19989)}{(2\,k_2)!}\right)\right)\Bigg/$$
$$\left(3\left(\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^{k}\pi^{2\,k}}{(2\,k)!}\right)\sum_{k=0}^{\infty}\frac{4^{-k}\,\pi^{2\,k}}{(2\,k)!}\right)$$

Integral representations:

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)=\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{s}\left(-\frac{3e^{-1.43996/s}}{\pi}+\frac{e^{-12.9596/s}}{3\pi}\right)\sqrt{\pi}}{\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt\qquad\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}}{6\,i\sqrt{s}}\,ds\quad\text{for }\gamma>0$$

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)=\int_{-i\infty+\gamma}^{i\infty+\gamma}\left(-\frac{e^{-1.43996/s+s}\sqrt{\pi}}{2\,i\sqrt{s}\left(1+\frac{\pi}{2}\int_0^1\sinh\left(\frac{\pi t}{2}\right)dt\right)}+\frac{e^{-12.9596/s+s}\sqrt{\pi}}{6\,i\sqrt{s}\left(1+\frac{3\pi}{2}\int_0^1\sinh\left(\frac{3\pi t}{2}\right)dt\right)}\right)ds\quad\text{for }\gamma>0$$

$$-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)=\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{\Gamma(s)\left(-\frac{3e^{-0.364612\,s}}{\pi}+\frac{e^{-2.56184\,s}}{3\pi}\right)\sqrt{\pi}}{\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt\qquad\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}}{6\,i\,\Gamma\left(\frac{1}{2}-s\right)}\,ds\quad\text{for }0<\gamma<\frac{1}{2}$$

and:

(((-Pi*((((cos (2.399963) / cosh(Pi/2) – cos (3*2.399963) / ((3cosh (3*Pi/2))))))))))^1/8

Input interpretation:

$$\sqrt[8]{-\pi\left(\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.399963)}{3\cosh\left(3\times\frac{\pi}{2}\right)}\right)}$$

$\cosh(x)$ is the hyperbolic cosine function

Result:

0.99158928...

0.99158928... result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1}=1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}}\approx 0.9991104684$$

and to the dilaton value $\mathbf{0.989117352243 = \phi}$

We obtain:

16log base 0.99158928(((-Pi*((((cos (2.399963) / cosh(Pi/2) – cos (3*2.399963) / ((3cosh (3*Pi/2))))))))))-Pi+1/golden ratio

Input interpretation:

$$16\log_{0.99158928}\left(-\pi\left(\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.399963)}{3\cosh\left(3\times\frac{\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}$$

Result:

125.476…

125.476… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Alternative representations:

$$16\log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$

$$-\pi+\frac{1}{\phi}+\frac{16\log\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(7.19989)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)}{\log(0.991589)}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$
$$-\pi+16 \log_{0.991589}\left(-\pi\left(\frac{\cosh(-2.39996\,i)}{\cos\left(\frac{i\pi}{2}\right)}-\frac{\cosh(-7.19989\,i)}{3\cos\left(\frac{3i\pi}{2}\right)}\right)\right)+\frac{1}{\phi}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$
$$-\pi+16 \log_{0.991589}\left(-\pi\left(\frac{e^{-2.39996i}+e^{2.39996i}}{2\cos\left(\frac{i\pi}{2}\right)}-\frac{e^{-7.19989i}+e^{7.19989i}}{2\left(3\cos\left(\frac{3i\pi}{2}\right)\right)}\right)\right)+\frac{1}{\phi}$$

Series representations:

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$
$$\frac{1}{\phi}-\pi-\frac{16\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1-\frac{\pi\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}+\frac{\pi\cos(7.19989)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)^k}{k}}{\log(0.991589)}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$
$$-\frac{-1+\phi\pi-16\phi\log_{0.991589}\left(\frac{\pi\sum_{k=0}^{\infty}\frac{(-1)^k e^{3.94813k}}{(2k)!}}{3\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^k\pi^{2k}}{(2k)!}}-\frac{\pi\sum_{k=0}^{\infty}\frac{(-1)^k e^{1.75091k}}{(2k)!}}{\sum_{k=0}^{\infty}\frac{4^{-k}\pi^{2k}}{(2k)!}}\right)}{\phi}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$
$$-\frac{-1+\phi\pi-16\phi\log_{0.991589}\left(-\pi\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k e^{1.75091k}}{(2k)!}}{i\sum_{k=0}^{\infty}\frac{\left(\frac{\pi}{2}-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}}-\frac{\sum_{k=0}^{\infty}\frac{(-1)^k e^{3.94813k}}{(2k)!}}{3i\sum_{k=0}^{\infty}\frac{\left(\frac{3\pi}{2}-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}}\right)\right)}{\phi}$$

Integral representations:

$$16\log_{0.99158928}\left(-\pi\left(\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.399963)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$

$$-\frac{-1+\phi\pi-16\phi\log_{0.99158928}\left(\begin{matrix}\frac{\pi\int_{i\pi}^{2.399963}\sin(t)\,dt}{2} & \frac{\pi\int_{i\pi}^{7.199889}\sin(t)\,dt}{2}\\ \frac{\pi}{\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt} & \frac{3\pi}{3\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}\end{matrix}\right)}{\phi}$$

$$16\log_{0.99158928}\left(-\pi\left(\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.399963)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$

$$-\frac{-1+\phi\pi-16\phi\log_{0.99158928}\left(-\pi\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^{s}\left(\begin{matrix}\frac{3e^{-1.43996/s}}{\pi} & -\frac{e^{-12.9596/s}}{3\pi}\\ \int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt & \int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt\end{matrix}\right)\sqrt{\pi}}{6i\pi\sqrt{s}}\,ds\right)}{\phi}\quad\text{for }\gamma>0$$

$$16\log_{0.99158928}\left(-\pi\left(\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.399963)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)-\pi+\frac{1}{\phi}=$$

$$-\frac{-1+\phi\pi-16\phi\log_{0.99158928}\left(-\pi\left(\begin{matrix}\frac{1-2.399963\int_0^1\sin(2.399963t)\,dt}{\pi} & \frac{1-7.199889\int_0^1\sin(7.199889t)\,dt}{3\pi}\\ \int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt & 3\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt\end{matrix}\right)\right)}{\phi}$$

And:

16log base 0.99158928(((-Pi*((((cos (2.399963) / cosh(Pi/2) – cos (3*2.399963) / ((3cosh (3*Pi/2))))))))))+11+1/golden ratio

Input interpretation:

$$16\log_{0.99158928}\left(-\pi\left(\frac{\cos(2.399963)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.399963)}{3\cosh\left(3\times\frac{\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}$$

Result:

139.618...

139.618… result practically equal to the rest mass of Pion meson 139.57

Alternative representations:

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}+\frac{16\log\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(7.19989)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)}{\log(0.991589)}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$
$$11+16 \log_{0.991589}\left(-\pi\left(\frac{\cosh(-2.39996\,i)}{\cos\left(\frac{i\pi}{2}\right)}-\frac{\cosh(-7.19989\,i)}{3\cos\left(\frac{3i\pi}{2}\right)}\right)\right)+\frac{1}{\phi}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$
$$11+16 \log_{0.991589}\left(-\pi\left(\frac{e^{-2.39996\,i}+e^{2.39996\,i}}{2\cos\left(\frac{i\pi}{2}\right)}-\frac{e^{-7.19989\,i}+e^{7.19989\,i}}{2\left(3\cos\left(\frac{3i\pi}{2}\right)\right)}\right)\right)+\frac{1}{\phi}$$

Series representations:

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$
$$11+\frac{1}{\phi}-\frac{16\sum_{k=1}^{\infty}\frac{(-1)^k\left(-1-\frac{\pi\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}+\frac{\pi\cos(7.19989)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)^k}{k}}{\log(0.991589)}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$
$$\frac{1+11\,\phi+16\,\phi\log_{0.991589}\left(\frac{\pi\sum_{k=0}^{\infty}\frac{(-1)^k e^{3.94813\,k}}{(2k)!}}{3\sum_{k=0}^{\infty}\frac{\left(\frac{9}{4}\right)^k\pi^{2k}}{(2k)!}}-\frac{\pi\sum_{k=0}^{\infty}\frac{(-1)^k e^{1.75091\,k}}{(2k)!}}{\sum_{k=0}^{\infty}\frac{4^{-k}\pi^{2k}}{(2k)!}}\right)}{\phi}$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$

$$\frac{1+11\,\phi+16\,\phi\log_{0.991589}\left(-\pi\left(\frac{\sum_{k=0}^{\infty}\frac{(-1)^k e^{1.75091\,k}}{(2k)!}}{i\sum_{k=0}^{\infty}\frac{\left(\frac{\pi}{2}-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}}-\frac{\sum_{k=0}^{\infty}\frac{(-1)^k e^{3.94813\,k}}{(2k)!}}{3i\sum_{k=0}^{\infty}\frac{\left(\frac{3\pi}{2}-\frac{i\pi}{2}\right)^{1+2k}}{(1+2k)!}}\right)\right)}{\phi}$$

Integral representations:

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$

$$\frac{1+11\,\phi+16\,\phi\log_{0.991589}\left(\frac{\pi\int_{\frac{\pi}{2}}^{2.39996}\sin(t)\,dt}{\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}-\frac{\pi\int_{\frac{\pi}{2}}^{7.19989}\sin(t)\,dt}{3\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}\right)}{\phi}$$

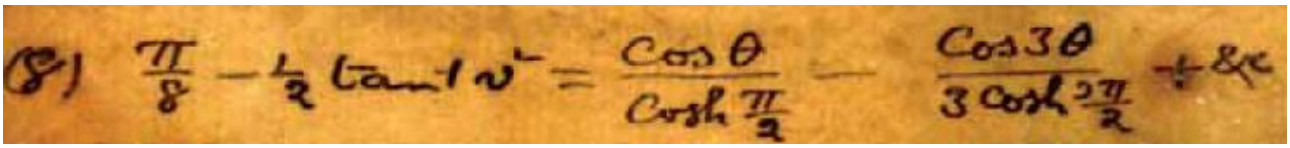
$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$

$$\frac{1+11\,\phi+16\,\phi\log_{0.991589}\left(-\pi\int_{-i\infty+\gamma}^{i\infty+\gamma}\frac{e^s\left(\frac{3e^{-1.43996/s}}{\pi}-\frac{e^{-12.9596/s}}{3\pi}\right)\sqrt{\pi}}{\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt\quad\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}\,ds\right)}{\phi}\quad\text{for }\gamma>0$$

$$16 \log_{0.991589}\left(-\pi\left(\frac{\cos(2.39996)}{\cosh\left(\frac{\pi}{2}\right)}-\frac{\cos(3\times 2.39996)}{3\cosh\left(\frac{3\pi}{2}\right)}\right)\right)+11+\frac{1}{\phi}=$$

$$\frac{1+11\,\phi+16\,\phi\log_{0.991589}\left(-\pi\left(\frac{1-2.39996\int_0^1\sin(2.39996t)\,dt}{\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}-\frac{1-7.19989\int_0^1\sin(7.19989t)\,dt}{3\int_{\frac{i\pi}{2}}^{2}\sinh(t)\,dt}\right)\right)}{\phi}$$

From:



We have:

-0.297512+1/2 tan^-1 (2.27798^2)

Input interpretation:

$$-0.297512 + \frac{1}{2}\tan^{-1}(2.27798^2)$$

$\tan^{-1}(x)$ is the inverse tangent function

Result:

0.392699...

(result in radians)

0.392699… = π/8

Input interpretation:

0.392699

Rational form:

$$\frac{392\,699}{1\,000\,000}$$

Possible closed forms:

$$\frac{\pi}{8} \approx 0.392699\,08169$$

Alternative representations:

$$-0.297512 + \frac{1}{2}\tan^{-1}(2.27798^2) = -0.297512 + \frac{\text{sc}^{-1}(2.27798^2 \mid 0)}{2}$$

$$-0.297512 + \frac{1}{2}\tan^{-1}(2.27798^2) = -0.297512 + \frac{1}{2}\cot^{-1}\left(\frac{1}{2.27798^2}\right)$$

$$-0.297512 + \frac{1}{2}\tan^{-1}(2.27798^2) = -0.297512 + \frac{1}{2}\tan^{-1}(1, 2.27798^2)$$

Series representations:

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$-0.297512+\frac{1.2973\,\pi}{\sqrt{26.9277}}-0.0963541\sum_{k=0}^{\infty}\frac{(-1)^k\,e^{-3.29316k}}{1+2k}$$

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$-0.297512+0.5\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{5}\right)^k\,10.3784^{1+2k}\,F_{1+2k}\left(\frac{1}{1+\sqrt{22.5422}}\right)^{1+2k}}{1+2k}$$

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$-0.297512+0.5\tan^{-1}(x)-0.5\,\pi\left\lfloor\frac{\arg(i\,(-5.18919+x))}{2\,\pi}\right\rfloor+$$

$$0.25\,i\sum_{k=1}^{\infty}\frac{\left(-(-i-x)^{-k}+(i-x)^{-k}\right)(5.18919-x)^k}{k}\quad\text{for}\ (i\,x\in\mathbb{R}\ \text{and}\ i\,x>1)$$

Integral representations:

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=-0.297512+2.5946\int_0^1\frac{1}{1+26.9277\,t^2}\,dt$$

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$-0.297512-\frac{0.648649\,i}{\pi^{3/2}}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}e^{-3.32962\,s}\,\Gamma\left(\frac{1}{2}-s\right)\Gamma(1-s)\,\Gamma(s)^2\,ds\quad\text{for}\ 0<\gamma<\frac{1}{2}$$

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$-0.297512+\frac{0.648649}{i\,\pi}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{-3.29316\,s}\,\Gamma\left(\frac{1}{2}-s\right)\Gamma(1-s)\,\Gamma(s)}{\Gamma\left(\frac{3}{2}-s\right)}\,ds\quad\text{for}\ 0<\gamma<\frac{1}{2}$$

Continued fraction representations:

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$-0.297512+\frac{2.5946}{1+\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{26.9277\,k^2}{1+2k}}=-0.297512+\cfrac{2.5946}{1+\cfrac{26.9277}{3+\cfrac{107.711}{5+\cfrac{242.35}{7+\cfrac{430.844}{9+\ldots}}}}}$$

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=-0.297512+\frac{2.5946}{1+\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{26.9277(1-2k)^2}{27.9277-51.8554k}}=$$

$$-0.297512+\cfrac{2.5946}{1+\cfrac{26.9277}{-23.9277+\cfrac{242.35}{-75.7832+\cfrac{673.193}{-127.639+\cfrac{1319.46}{-179.494+\ldots}}}}}$$

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$2.29708-\frac{69.8666}{3+\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{26.9277\left(1+(-1)^{1+k}+k\right)^2}{3+2k}}=2.29708-\cfrac{69.8666}{3+\cfrac{242.35}{5+\cfrac{107.711}{7+\cfrac{673.193}{9+\cfrac{430.844}{11+\ldots}}}}}$$

$$-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)=$$

$$-0.297512+\frac{2.5946}{27.9277+\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{53.8554\left(1-2\left\lfloor\frac{1+k}{2}\right\rfloor\right)\left\lfloor\frac{1+k}{2}\right\rfloor}{\left(14.4639+13.4639(-1)^k\right)(1+2k)}}=$$

$$-0.297512+\cfrac{2.5946}{27.9277+-\cfrac{53.8554}{3-\cfrac{53.8554}{139.639-\cfrac{323.133}{7-\cfrac{323.133}{251.35+\ldots}}}}}$$

Multiplying the result by $4\pi/3$ and adding $3^3/10^3$, and again multiplying all the expression by $1/10^{27}$, we obtain:

1/10^27*[((-0.297512+1/2 tan^-1 (2.27798^2)))) * 4Pi/3 +3^3/10^3]

Input interpretation:

$$\frac{1}{10^{27}}\left(\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)\times 4\times\frac{\pi}{3}+\frac{3^3}{10^3}\right)$$

$\tan^{-1}(x)$ is the inverse tangent function

Result:

$1.67193\ldots\times 10^{-27}$

(result in radians)

$1.67193\ldots*10^{-27}$ result practically equal to the proton mass

Alternative representations:

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=\frac{\frac{4}{3}\pi\left(-0.297512+\frac{\text{sc}^{-1}\left(2.27798^2\middle|0\right)}{2}\right)+\frac{27}{10^3}}{10^{27}}$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=\frac{\frac{4}{3}\pi\left(-0.297512+\frac{1}{2}\cot^{-1}\left(\frac{1}{2.27798^2}\right)\right)+\frac{27}{10^3}}{10^{27}}$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=\frac{\frac{4}{3}\pi\left(-0.297512+\frac{1}{2}\tan^{-1}\left(1,\,2.27798^2\right)\right)+\frac{27}{10^3}}{10^{27}}$$

Series representations:

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=2.7\times10^{-29}-3.96683\times10^{-28}\,\pi+\frac{1.72973\times10^{-27}\,\pi^2}{\sqrt{26.9277}}-1.28472\times10^{-28}\,\pi\sum_{k=0}^{\infty}\frac{(-1)^k\,e^{-3.29316k}}{1+2k}$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=2.7\times10^{-29}-3.96683\times10^{-28}\,\pi+6.66667\times10^{-28}\,\pi\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{5}\right)^k\,10.3784^{1+2k}\,F_{1+2k}\left(\frac{1}{1+\sqrt{22.5422}}\right)^{1+2k}}{1+2k}$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=2.7\times10^{-29}-3.96683\times10^{-28}\,\pi+6.66667\times10^{-28}\,\pi\tan^{-1}(x)-6.66667\times10^{-28}\,\pi^2\left\lfloor\frac{\arg(i\,(-5.18919+x))}{2\pi}\right\rfloor+3.33333\times10^{-28}\,i\,\pi\sum_{k=1}^{\infty}\frac{\left(-(-i-x)^{-k}+(i-x)^{-k}\right)(5.18919-x)^k}{k}\quad\text{for}\ (i\,x\in\mathbb{R}\ \text{and}\ i\,x>1)$$

Integral representations:

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=$$
$$2.7\times10^{-29}-3.96683\times10^{-28}\pi+3.45946\times10^{-27}\pi\int_0^1\frac{1}{1+26.9277\,t^2}\,dt$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=2.7\times10^{-29}-3.96683\times10^{-28}\pi-$$
$$\frac{8.64865\times10^{-28}\,i}{\sqrt{\pi}}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}e^{-3.32962\,s}\,\Gamma\left(\frac{1}{2}-s\right)\Gamma(1-s)\,\Gamma(s)^2\,ds\quad\text{for } 0<\gamma<\frac{1}{2}$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=2.7\times10^{-29}-3.96683\times10^{-28}\pi+$$
$$\frac{8.64865\times10^{-28}}{i}\int_{-i\,\infty+\gamma}^{i\,\infty+\gamma}\frac{e^{-3.29316\,s}\,\Gamma\left(\frac{1}{2}-s\right)\Gamma(1-s)\,\Gamma(s)}{\Gamma\left(\frac{3}{2}-s\right)}\,ds\quad\text{for } 0<\gamma<\frac{1}{2}$$

Continued fraction representations:

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=$$
$$\frac{2.7\times10^{-29}+3.06278\times10^{-27}\pi+\left(2.7\times10^{-29}-3.96683\times10^{-28}\pi\right)\left(\underset{k=1}{\overset{\infty}{\mathrm{K}}}\,\frac{26.9277k^2}{1+2k}\right)}{1+\underset{k=1}{\overset{\infty}{\mathrm{K}}}\,\frac{26.9277k^2}{1+2k}}=$$
$$\frac{9.649\times10^{-27}-1.21922\times10^{-27}\,\cfrac{26.9277}{3+\cfrac{107.711}{5+\cfrac{242.35}{7+\cfrac{430.844}{9+\ldots}}}}}{1+\cfrac{26.9277}{3+\cfrac{107.711}{5+\cfrac{242.35}{7+\cfrac{430.844}{9+\ldots}}}}}$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=$$

$$\left(2.7\times10^{-29}+3.06278\times10^{-27}\pi+\left(2.7\times10^{-29}-3.96683\times10^{-28}\pi\right)\left(\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{26.9277\,(1-2k)^2}{27.9277-51.8554k}\right)\right)\Big/\left(1+\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{26.9277\,(1-2k)^2}{27.9277-51.8554k}\right)=$$

$$9.649\times10^{-27}-1.21922\times10^{-27}\,\frac{26.9277}{-23.9277+\dfrac{242.35}{-75.7832+\dfrac{673.193}{-127.639+\dfrac{1319.46}{-179.494+\ldots}}}}\Bigg/\left(1+\frac{26.9277}{-23.9277+\dfrac{242.35}{-75.7832+\dfrac{673.193}{-127.639+\dfrac{1319.46}{-179.494+\ldots}}}}\right)$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}}=$$

$$\left(8.1\times10^{-29}-8.39671\times10^{-26}\pi+\left(2.7\times10^{-29}+3.06278\times10^{-27}\pi\right)\left(\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{26.9277\left(1+(-1)^{1+k}+k\right)^2}{3+2k}\right)\right)\Big/\left(3+\underset{k=1}{\overset{\infty}{\mathrm{K}}}\frac{26.9277\left(1+(-1)^{1+k}+k\right)^2}{3+2k}\right)=$$

$$-2.63709\times10^{-25}+9.649\times10^{-27}\,\frac{242.35}{5+\dfrac{107.711}{7+\dfrac{673.193}{9+\dfrac{430.844}{11+\ldots}}}}\Bigg/\left(3+\frac{242.35}{5+\dfrac{107.711}{7+\dfrac{673.193}{9+\dfrac{430.844}{11+\ldots}}}}\right)$$

$$\frac{\frac{1}{3}\left(-0.297512+\frac{1}{2}\tan^{-1}\left(2.27798^2\right)\right)4\pi+\frac{3^3}{10^3}}{10^{27}_{27}}=$$

$$\frac{}{1\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}+$$

$$\pi\left(-3.96683\times10^{-28}+\frac{3.45946\times10^{-27}}{27.9277+\overset{\infty}{\underset{k=1}{\mathrm{K}}}\frac{53.8554\left(1-2\left\lfloor\frac{1+k}{2}\right\rfloor\right)\left\lfloor\frac{1+k}{2}\right\rfloor}{\left(14.4639+13.4639(-1)^k\right)(1+2k)}}\right)=$$

$$\frac{27}{1\,000\,000\,000\,000\,000\,000\,000\,000\,000\,000}+$$

$$\pi\left(-3.96683\times10^{-28}+\frac{3.45946\times10^{-27}}{27.9277+-\cfrac{53.8554}{3-\cfrac{53.8554}{139.639-\cfrac{323.133}{7-\cfrac{323.133}{251.35+\ldots}}}}}\right)$$

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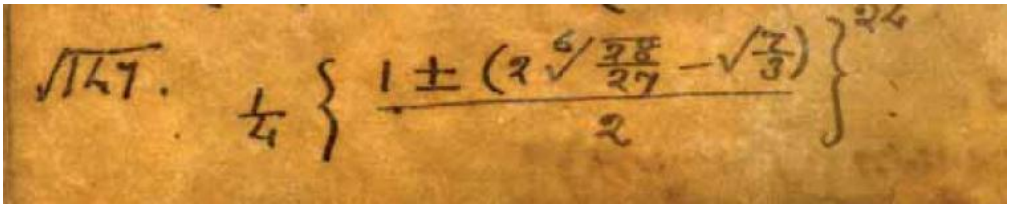


sqrt147 1/4[((1+(2*(28/27)^1/6-(7/3)^1/2)*1/2))]^24

Input:

$$\sqrt{147}\times\frac{1}{4}\left(1+\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\times\frac{1}{2}\right)^{24}$$

Result:

$$\frac{7}{4}\sqrt{3}\left(1+\frac{1}{2}\left(\frac{2\sqrt[3]{2}\,\sqrt[6]{7}}{\sqrt{3}}-\sqrt{\frac{7}{3}}\right)\right)^{24}$$

Decimal approximation:

553.576310957761150892449714241142018112120559267580403417 6...

553.57631095…

Alternate forms:

$$\frac{7\sqrt{3}\left(6+2\sqrt[3]{2}\ \sqrt{3}\ \sqrt[6]{7}-\sqrt{21}\right)^{24}}{18\,953\,525\,353\,286\,467\,584}$$

$$\frac{7\left(6+2\sqrt[3]{2}\ \sqrt{3}\ \sqrt[6]{7}-\sqrt{21}\right)^{24}}{6\,317\,841\,784\,428\,822\,528\sqrt{3}}$$

$$\frac{7\left(2\sqrt{3}+2\sqrt[3]{2}\ \sqrt[6]{7}-\sqrt{7}\right)^{24}}{11\,888\,133\,931\,008\sqrt{3}}$$

We obtain also:

1/Pi* sqrt147 1/4[((1+(2*(28/27)^1/6-(7/3)^1/2)*1/2))]^24 - 29-11+3+1/golden ratio

Input:

$$\frac{1}{\pi}\sqrt{147}\left(\frac{1}{4}\left(1+\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\times\frac{1}{2}\right)^{24}\right)-29-11+3+\frac{1}{\phi}$$

ϕ is the golden ratio

Result:

$$\frac{1}{\phi}-37+\frac{7\sqrt{3}\left(1+\frac{1}{2}\left(\frac{2\sqrt[3]{2}\ \sqrt[6]{7}}{\sqrt{3}}-\sqrt{\frac{7}{3}}\right)\right)^{24}}{4\pi}$$

Decimal approximation:

139.826846523757559542335991823843869468922557 1185119148748...

139.82684652… result practically equal to the rest mass of Pion meson 139.57

Property:

$$-37+\frac{1}{\phi}+\frac{7\sqrt{3}\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}+\frac{2\sqrt[3]{2}\ \sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}}{4\pi}\ \text{is a transcendental number}$$

Alternate forms:

$$\frac{1}{67\,108\,864\,\pi}\left(-56\,494\,569\,452\,637\,785\,\sqrt{3}\,+\right.$$
$$6\,475\,173\,025\,186\,656\,\sqrt[3]{2}\,\sqrt[6]{7}\,+20\,749\,964\,390\,355\,984\times 2^{2/3}\,\sqrt{3}\,\sqrt[3]{7}\,+$$
$$36\,984\,381\,951\,320\,496\,\sqrt{7}\,-1\,412\,997\,045\,166\,896\,\sqrt[3]{2}\,\sqrt{3}\,\,7^{2/3}\,-$$
$$\left.13\,584\,038\,815\,634\,112\times 2^{2/3}\times 7^{5/6}-2\,516\,582\,400\,\pi+33\,554\,432\,\sqrt{5}\,\pi\right)$$

$$\frac{1}{\phi}-37+\frac{7\left(2\sqrt{3}\,+2\sqrt[3]{2}\,\sqrt[6]{7}\,-\sqrt{7}\right)^{24}}{11\,888\,133\,931\,008\,\sqrt{3}\,\pi}$$

$$\frac{\left(7\sqrt{3}\,\left(2\sqrt{3}\,+2\sqrt[3]{2}\,\sqrt[6]{7}\,-\sqrt{7}\right)^{24}-1\,319\,582\,866\,341\,888\,\pi\right)\phi+35\,664\,401\,793\,024\,\pi}{35\,664\,401\,793\,024\,\pi\,\phi}$$

Series representations:

$$\frac{\sqrt{147}\,\left(1+\frac{1}{2}\left(2\sqrt[6]{\frac{28}{27}}\,-\sqrt{\frac{7}{3}}\,\right)\right)^{24}}{4\,\pi}-29-11+3+\frac{1}{\phi}=$$
$$-37+\frac{1}{\phi}+\frac{\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}\,+\frac{2\sqrt[3]{2}\,\sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}\sqrt{146}\,\sum_{k=0}^{\infty}146^{-k}\binom{\frac{1}{2}}{k}}{4\,\pi}$$

$$\frac{\sqrt{147}\,\left(1+\frac{1}{2}\left(2\sqrt[6]{\frac{28}{27}}\,-\sqrt{\frac{7}{3}}\,\right)\right)^{24}}{4\,\pi}-29-11+3+\frac{1}{\phi}=$$
$$-37+\frac{1}{\phi}+\frac{\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}\,+\frac{2\sqrt[3]{2}\,\sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}\sqrt{146}\,\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{146}\right)^{k}\left(-\frac{1}{2}\right)_{k}}{k!}}{4\,\pi}$$

$$\frac{\sqrt{147}\,\left(1+\frac{1}{2}\left(2\sqrt[6]{\frac{28}{27}}\,-\sqrt{\frac{7}{3}}\,\right)\right)^{24}}{4\,\pi}-29-11+3+\frac{1}{\phi}=$$
$$-37+\frac{1}{\phi}+\frac{\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}\,+\frac{2\sqrt[3]{2}\,\sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}\sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j}\,146^{-s}\,\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)}{8\,\pi\,\sqrt{\pi}}$$

And:

1/Pi* sqrt147 1/4[((1+(2*(28/27)^1/6-(7/3)^1/2)*1/2))]^24-47-4

Input:

$$\frac{1}{\pi}\sqrt{147}\left(\frac{1}{4}\left(1+\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\times\frac{1}{2}\right)^{24}\right)-47-4$$

Result:

$$\frac{7\sqrt{3}\left(1+\frac{1}{2}\left(\frac{2\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}-\sqrt{\frac{7}{3}}\right)\right)^{24}}{4\pi}-51$$

Decimal approximation:

125.208812535007664694131404989478231351202247938706152012 7...

125.2088125… result very near to the dilaton mass calculated as a type of Higgs boson: 125 GeV for T = 0 and to the Higgs boson mass 125.18

Property:

$$-51+\frac{7\sqrt{3}\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}+\frac{2\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}}{4\pi}\text{ is a transcendental number}$$

Alternate forms:

$$\frac{1}{67\,108\,864\,\pi}\left(-56\,494\,569\,452\,637\,785\sqrt{3}+6\,475\,173\,025\,186\,656\sqrt[3]{2}\sqrt[6]{7}+20\,749\,964\,390\,355\,984\times 2^{2/3}\sqrt{3}\sqrt[3]{7}+36\,984\,381\,951\,320\,496\sqrt{7}-1\,412\,997\,045\,166\,896\sqrt[3]{2}\sqrt{3}\,7^{2/3}-13\,584\,038\,815\,634\,112\times 2^{2/3}\times 7^{5/6}-3\,422\,552\,064\,\pi\right)$$

$$\frac{7\left(2\sqrt{3}+2\sqrt[3]{2}\sqrt[6]{7}-\sqrt{7}\right)^{24}}{11\,888\,133\,931\,008\sqrt{3}\,\pi}-51$$

$$\frac{7\sqrt{3}\left(1-\frac{\sqrt{\frac{7}{3}}}{2}+\frac{\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}\right)^{24}}{4\pi}-51$$

Series representations:

$$\frac{\sqrt{147}\left(1+\frac{1}{2}\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\right)^{24}}{4\pi}-47-4=$$
$$-51+\frac{\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}+\frac{2\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}\sqrt{146}\sum_{k=0}^{\infty}146^{-k}\binom{\frac{1}{2}}{k}}{4\pi}$$

$$\frac{\sqrt{147}\left(1+\frac{1}{2}\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\right)^{24}}{4\pi}-47-4=$$
$$-51+\frac{\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}+\frac{2\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}\sqrt{146}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{146}\right)^{k}\left(-\frac{1}{2}\right)_{k}}{k!}}{4\pi}$$

$$\frac{\sqrt{147}\left(1+\frac{1}{2}\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\right)^{24}}{4\pi}-47-4=$$
$$-51+\frac{\left(1+\frac{1}{2}\left(-\sqrt{\frac{7}{3}}+\frac{2\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}\right)\right)^{24}\sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j}146^{-s}\,\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)}{8\pi\sqrt{\pi}}$$

(((1/((((sqrt147 1/4[((1+(2*(28/27)^1/6-(7/3)^1/2)*1/2))]^24)))))))^1/1024

Input:

$$\sqrt[1024]{\frac{1}{\sqrt{147}\times\frac{1}{4}\left(1+\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\times\frac{1}{2}\right)^{24}}}$$

Exact result:

$$\frac{\sqrt[512]{2}}{\sqrt[2048]{3}\,\sqrt[1024]{7}\left(1+\frac{1}{2}\left(\frac{2\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}-\sqrt{\frac{7}{3}}\right)\right)^{3/128}}$$

Decimal approximation:

0.99385062627374001455824173050911966615438562618267683867 9...

0.993850626…. result very near to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1}=1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+\ldots}}}}\approx 0.9991104684$$

and to the dilaton value $\mathbf{0.989117352243} = \boldsymbol{\phi}$

Alternate forms:

$$\frac{2^{13/512}\times 3^{47/2048}}{\sqrt[1024]{7}\left(\text{root of } x^6-48\,384 \text{ near } x=6.03648 +6-\sqrt{21}\right)^{3/128}}$$

$$\frac{2^{13/512}\times 3^{47/2048}}{\sqrt[1024]{7}\left(6+2\sqrt[3]{2}\sqrt{3}\sqrt[6]{7}-\sqrt{21}\right)^{3/128}}$$

$$\frac{2^{13/512}\times 3^{23/2048}}{\sqrt[1024]{7}\left(2\sqrt{3}+2\sqrt[3]{2}\sqrt[6]{7}-\sqrt{7}\right)^{3/128}}$$

(((1/((((sqrt147 1/4[((1+(2*(28/27)^1/6-(7/3)^1/2)*1/2))]^24)))))))^1/128

Input:

$$\sqrt[128]{\frac{1}{\sqrt{147}\times\frac{1}{4}\left(1+\left(2\sqrt[6]{\frac{28}{27}}-\sqrt{\frac{7}{3}}\right)\times\frac{1}{2}\right)^{24}}}$$

Exact result:

$$\frac{\sqrt[64]{2}}{\sqrt[256]{3}\,\sqrt[128]{7}\left(1+\frac{1}{2}\left(\frac{2\sqrt[3]{2}\sqrt[6]{7}}{\sqrt{3}}-\sqrt{\frac{7}{3}}\right)\right)^{3/16}}$$

Decimal approximation:

0.95185090202848298326825715314089901969506561540490031830 6...

0.951850902028… result very near to the spectral index n_s , to the mesonic Regge slope, to the inflaton value at the end of the inflation 0.9402 (see Appendix) and to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{5}}}{\sqrt{(\varphi-1)\sqrt{5}}-\varphi+1}=1-\cfrac{e^{-\pi}}{1+\cfrac{e^{-2\pi}}{1+\cfrac{e^{-3\pi}}{1+\cfrac{e^{-4\pi}}{1+\ldots}}}}\approx 0.9568666373$$

From:

Astronomy & Astrophysics manuscript no. ms c ESO 2019 - September 24, 2019
Planck 2018 results. VI. Cosmological parameters

The primordial fluctuations are consistent with Gaussian purely adiabatic scalar perturbations characterized by a power spectrum with a spectral index n_s = 0.965 ± 0.004, consistent with the predictions of slow-roll, single-field, inflation.

We know that α' is the Regge slope (string tension). With regard the Omega mesons, the values are:

ω	6	$m_{u/d} = 0 - 60$	$0.910 - 0.918$
ω/ω_3	$5+3$	$m_{u/d} = 255 - 390$	$0.988 - 1.18$
ω/ω_3	$5+3$	$m_{u/d} = 240 - 345$	$0.937 - 1.000$

Alternate forms:

$$\frac{2^{13/64}\times 3^{47/256}}{\sqrt[128]{7}\left(\text{root of } x^6-48\,384 \text{ near } x=6.03648 +6-\sqrt{21}\right)^{3/16}}$$

$$\frac{2^{13/64}\times 3^{47/256}}{\sqrt[128]{7}\left(6+2\sqrt[3]{2}\sqrt{3}\sqrt[6]{7}-\sqrt{21}\right)^{3/16}}$$

$$\frac{2^{13/64}\times 3^{23/256}}{\sqrt[128]{7}\left(2\sqrt{3}+2\sqrt[3]{2}\sqrt[6]{7}-\sqrt{7}\right)^{3/16}}$$

Note that:

$$g_{22} = \sqrt{(1+\sqrt{2})}.$$

Hence

$$\begin{aligned} 64g_{22}^{24} &= e^{\pi\sqrt{22}} - 24 + 276e^{-\pi\sqrt{22}} - \cdots, \\ 64g_{22}^{-24} &= 4096e^{-\pi\sqrt{22}} + \cdots, \end{aligned}$$

so that

$$64(g_{22}^{24} + g_{22}^{-24}) = e^{\pi\sqrt{22}} - 24 + 4372e^{-\pi\sqrt{22}} + \cdots = 64\{(1+\sqrt{2})^{12} + (1-\sqrt{2})^{12}\}.$$

Hence

$$e^{\pi\sqrt{22}} = 2508951.9982\ldots.$$

Thence:

$$64g_{22}^{-24} = 4096e^{-\pi\sqrt{22}} + \cdots$$

And

$$64(g_{22}^{24} + g_{22}^{-24}) = e^{\pi\sqrt{22}} - 24 + 4372e^{-\pi\sqrt{22}} + \cdots = 64\{(1+\sqrt{2})^{12} + (1-\sqrt{2})^{12}\}$$

That are connected with 64, 128, 256, 512, 1024 and 4096 = 64^2

(Modular equations and approximations to π - S. Ramanujan - Quarterly Journal of Mathematics, XLV, 1914, 350 – 372)

In conclusion we obtain also many results that are very good approximations to the value of the golden ratio 1.618033988749...

From:

From:

Modular equations and approximations to π - *Srinivasa Ramanujan*
Quarterly Journal of Mathematics, XLV, 1914, 350 – 372

We have that:

Hence

$$\begin{aligned} 64g_{22}^{24} &= e^{\pi\sqrt{22}} - 24 + 276e^{-\pi\sqrt{22}} - \cdots, \\ 64g_{22}^{-24} &= 4096e^{-\pi\sqrt{22}} + \cdots, \end{aligned}$$

so that

$$64(g_{22}^{24} + g_{22}^{-24}) = e^{\pi\sqrt{22}} - 24 + 4372e^{-\pi\sqrt{22}} + \cdots = 64\{(1+\sqrt{2})^{12} + (1-\sqrt{2})^{12}\}.$$

Hence

$$e^{\pi\sqrt{22}} = 2508951.9982\ldots.$$

Again

$$G_{37} = (6+\sqrt{37})^{\frac{1}{4}},$$

$$\begin{aligned} 64G_{37}^{24} &= e^{\pi\sqrt{37}} + 24 + 276e^{-\pi\sqrt{37}} + \cdots, \\ 64G_{37}^{-24} &= 4096e^{-\pi\sqrt{37}} - \cdots, \end{aligned}$$

so that

$$64(G_{37}^{24} + G_{37}^{-24}) = e^{\pi\sqrt{37}} + 24 + 4372e^{-\pi\sqrt{37}} - \cdots = 64\{(6+\sqrt{37})^{6} + (6-\sqrt{37})^{6}\}.$$

Hence

$$e^{\pi\sqrt{37}} = 199148647.999978\ldots.$$

Similarly, from

$$g_{58} = \sqrt{\left(\frac{5+\sqrt{29}}{2}\right)},$$

we obtain

$$64(g_{58}^{24} + g_{58}^{-24}) = e^{\pi\sqrt{58}} - 24 + 4372e^{-\pi\sqrt{58}} + \cdots = 64\left\{\left(\frac{5+\sqrt{29}}{2}\right)^{12} + \left(\frac{5-\sqrt{29}}{2}\right)^{12}\right\}.$$

Hence

$$e^{\pi\sqrt{58}} = 24591257751.99999982\ldots.$$

From:

An Update on Brane Supersymmetry Breaking

J. Mourad and A. Sagnotti - arXiv:1711.11494v1 [hep-th] 30 Nov 2017

From the following vacuum equations:

$$T\, e^{\gamma_E \phi} = -\frac{\beta_E^{(p)}\, h^2}{\gamma_E}\, e^{-2(8-p)C + 2\beta_E^{(p)}\phi}$$

$$16\, k'\, e^{-2C} = \frac{h^2 \left(p + 1 - \frac{2\beta_E^{(p)}}{\gamma_E}\right) e^{-2(8-p)C + 2\beta_E^{(p)}\phi}}{(7-p)}$$

$$(A')^2 = k\, e^{-2A} + \frac{h^2}{16(p+1)} \left(7 - p + \frac{2\beta_E^{(p)}}{\gamma_E}\right) e^{-2(8-p)C + 2\beta_E^{(p)}\phi}$$

we have obtained, from the results almost equals of the equations, putting

$4096\, e^{-\pi\sqrt{18}}$ instead of

$$e^{-2(8-p)C + 2\beta_E^{(p)}\phi}$$

a new possible mathematical connection between the two exponentials. Thence, also the values concerning *p*, *C*, βE and ϕ correspond to the exponents of *e* (i.e. of exp). Thence we obtain for p = 5 and βE = 1/2:

$$e^{-6C+\phi} = 4096 e^{-\pi\sqrt{18}}$$

Therefore, with respect to the exponentials of the vacuum equations, the Ramanujan's exponential has a coefficient of 4096 which is equal to 642, while -6C+ϕ is equal to -$\pi\sqrt{18}$. From this it follows that it is possible to establish mathematically, the dilaton value.

For

exp((-Pi*sqrt(18)) we obtain:

Input:

$\exp\left(-\pi\sqrt{18}\right)$

Exact result:

$e^{-3\sqrt{2}\,\pi}$

Decimal approximation:

$1.627201622607250929294215673911797954183858113695401 6\ldots \times 10^{-6}$

1.6272016… * 10^{-6}

Property:

$e^{-3\sqrt{2}\,\pi}$ is a transcendental number

Series representations:

$$e^{-\pi\sqrt{18}} = e^{-\pi\sqrt{17}\,\sum_{k=0}^{\infty} 17^{-k}\binom{1/2}{k}}$$

$$e^{-\pi\sqrt{18}} = \exp\left(-\pi\sqrt{17}\,\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{17}\right)^k\left(-\frac{1}{2}\right)_k}{k!}\right)$$

$$e^{-\pi\sqrt{18}} = \exp\left(-\frac{\pi\sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j} 17^{-s}\,\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)}{2\sqrt{\pi}}\right)$$

Now, we have the following calculations:

$$e^{-6C+\phi} = 4096e^{-\pi\sqrt{18}}$$

$$e^{-\pi\sqrt{18}} = 1.6272016\ldots * 10\text{^}\text{-}6$$

from which:

$$\frac{1}{4096}e^{-6C+\phi} = 1.6272016\ldots * 10\text{^}\text{-}6$$

$$0.000244140625\, e^{-6C+\phi} = e^{-\pi\sqrt{18}} = 1.6272016\ldots * 10\text{^-}6$$

Now:

$$\ln\left(e^{-\pi\sqrt{18}}\right) = -13.328648814475 = -\pi\sqrt{18}$$

And:

(1.6272016* 10^-6) *1/ (0.000244140625)

Input interpretation:

$$\frac{1.6272016}{10^6} \times \frac{1}{0.000244140625}$$

Result:

0.0066650177536

0.006665017...

Thence:

$$0.000244140625\, e^{-6C+\phi} = e^{-\pi\sqrt{18}}$$

Dividing both sides by 0.000244140625, we obtain:

$$\frac{0.000244140625}{0.000244140625}\, e^{-6C+\phi} = \frac{1}{0.000244140625}\, e^{-\pi\sqrt{18}}$$

$$e^{-6C+\phi} = 0.0066650177536$$

((((exp((-Pi*sqrt(18)))))))*1/0.000244140625

Input interpretation:

$$\exp\left(-\pi\sqrt{18}\right)\times\frac{1}{0.000244140625}$$

Result:

0.00666501785...

0.00666501785…

Series representations:

$$\frac{\exp\left(-\pi\sqrt{18}\right)}{0.000244141}=4096\exp\left(-\pi\sqrt{17}\sum_{k=0}^{\infty}17^{-k}\binom{\frac{1}{2}}{k}\right)$$

$$\frac{\exp\left(-\pi\sqrt{18}\right)}{0.000244141}=4096\exp\left(-\pi\sqrt{17}\sum_{k=0}^{\infty}\frac{\left(-\frac{1}{17}\right)^{k}\left(-\frac{1}{2}\right)_{k}}{k!}\right)$$

$$\frac{\exp\left(-\pi\sqrt{18}\right)}{0.000244141}=4096\exp\left(-\frac{\pi\sum_{j=0}^{\infty}\operatorname{Res}_{s=-\frac{1}{2}+j}\,17^{-s}\,\Gamma\left(-\frac{1}{2}-s\right)\Gamma(s)}{2\sqrt{\pi}}\right)$$

Now:

$$e^{-6C+\phi}=0.0066650177536$$

$$\exp\left(-\pi\sqrt{18}\right)\times\frac{1}{0.000244140625}=$$

$$e^{-\pi\sqrt{18}}\times\frac{1}{0.000244140625}$$

= 0.00666501785…

From:

ln(0.00666501784619)

Input interpretation:

$\log(0.00666501784619)$

Result:

−5.010882647757…

-5.010882647757…

Alternative representations:

$\log(0.006665017846190000) = \log_e(0.006665017846190000)$

$\log(0.006665017846190000) = \log(a)\log_a(0.006665017846190000)$

$\log(0.006665017846190000) = -\mathrm{Li}_1(0.993334982153810000)$

Series representations:

$$\log(0.006665017846190000) = -\sum_{k=1}^{\infty} \frac{(-1)^k\,(-0.993334982153810000)^k}{k}$$

$$\log(0.006665017846190000) = 2\,i\,\pi\left\lfloor \frac{\arg(0.006665017846190000 - x)}{2\,\pi} \right\rfloor + \log(x) - \sum_{k=1}^{\infty} \frac{(-1)^k\,(0.006665017846190000 - x)^k\,x^{-k}}{k} \quad \text{for } x < 0$$

$$\log(0.006665017846190000) = \left\lfloor \frac{\arg(0.006665017846190000 - z_0)}{2\pi} \right\rfloor \log\left(\frac{1}{z_0}\right) + \log(z_0) + \left\lfloor \frac{\arg(0.006665017846190000 - z_0)}{2\pi} \right\rfloor \log(z_0) - \sum_{k=1}^{\infty} \frac{(-1)^k \, (0.006665017846190000 - z_0)^k \, z_0^{-k}}{k}$$

Integral representation:

$$\log(0.006665017846190000) = \int_1^{0.006665017846190000} \frac{1}{t}\, dt$$

In conclusion:

$$-6C + \phi = -5.010882647757\ldots$$

and for C = 1, we obtain:

$\phi = -5.010882647757 + 6 = \mathbf{0.989117352243} = \boldsymbol{\phi}$

Note that the values of n_s (spectral index) 0.965, of the average of the Omega mesons Regge slope 0.987428571 and of the dilaton 0.989117352243, are also connected to the following two Rogers-Ramanujan continued fractions:

$$\frac{e^{-\frac{\pi}{5}}}{\sqrt{(\varphi-1)\sqrt{5}} - \varphi + 1} = 1 - \cfrac{e^{-\pi}}{1 + \cfrac{e^{-2\pi}}{1 + \cfrac{e^{-3\pi}}{1 + \cfrac{e^{-4\pi}}{1 + \ldots}}}} \approx 0.9568666373$$

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1 + \sqrt[5]{\sqrt{\varphi^5 \sqrt[4]{5^3}} - 1}} - \varphi + 1} = 1 - \cfrac{e^{-\pi\sqrt{5}}}{1 + \cfrac{e^{-2\pi\sqrt{5}}}{1 + \cfrac{e^{-3\pi\sqrt{5}}}{1 + \cfrac{e^{-4\pi\sqrt{5}}}{1 + \ldots}}}} \approx 0.9991104684$$

(http://www.bitman.name/math/article/102/109/)

Also performing the 512th root of the inverse value of the Pion meson rest mass 139.57, we obtain:

((1/(139.57)))^1/512

Input interpretation:

$$\sqrt[512]{\frac{1}{139.57}}$$

Result:

0.990400732708644027550973755713301415460732796178555551684...

0.99040073.... result very near to the dilaton value $\mathbf{0.989117352243} = \boldsymbol{\phi}$ and to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{\sqrt{5}}}}{\frac{\sqrt{5}}{1+\sqrt[5]{\sqrt{\varphi^5\sqrt[4]{5^3}}-1}}-\varphi+1} = 1-\frac{e^{-\pi\sqrt{5}}}{1+\frac{e^{-2\pi\sqrt{5}}}{1+\frac{e^{-3\pi\sqrt{5}}}{1+\frac{e^{-4\pi\sqrt{5}}}{1+...}}}} \approx 0.9991104684$$

From

March 27, 2018
AdS Vacua from Dilaton Tadpoles and Form Fluxes
J. Mourad and A. Sagnotti - arXiv:1612.08566v2 [hep-th] 22 Feb 2017

We have:

$$e^{2C} = \frac{2\xi e^{\frac{\phi}{2}}}{1 \pm \sqrt{1 - \frac{\xi T}{3} e^{2\phi}}}$$

$$\frac{h^2}{32} = \frac{\xi^7 e^{4\phi}}{\left(1 \pm \sqrt{1 - \frac{\xi T}{3} e^{2\phi}}\right)^7} \left[\frac{42}{\xi}\left(1 \pm \sqrt{1 - \frac{\xi T}{3} e^{2\phi}}\right) + 5\, T e^{2\phi}\right] . \quad (2.7)$$

For

$T = \frac{16}{\pi^2}$

$\xi = 1$

we obtain:

(2*e^(0.989117352243/2)) / (1+sqrt(((1-1/3*16/(Pi)^2*e^(2*0.989117352243)))))

Input interpretation:

$$\frac{2\, e^{0.989117352243/2}}{1 + \sqrt{1 - \frac{1}{3} \times \frac{16}{\pi^2}\, e^{2 \times 0.989117352243}}}$$

Result:

0.83941881822... –
1.4311851867... i

Polar coordinates:

$r = 1.65919106525$ (radius), $\theta = -59.607521917°$ (angle)

1.65919106525….. result very near to the 14th root of the following Ramanujan's class invariant $Q = \left(G_{505}/G_{101/5}\right)^3$ = 1164.2696 i.e. 1.65578...

Series representations:

$$\frac{2\,e^{0.9891173522430000/2}}{1+\sqrt{1-\frac{16\,e^2\times 0.9891173522430000}{3\,\pi^2}}} = \frac{2\,e^{0.4945586761215000}}{1+\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\ \sum_{k=0}^{\infty}\left(\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}}$$

$$\frac{2\,e^{0.9891173522430000/2}}{1+\sqrt{1-\frac{16\,e^2\times 0.9891173522430000}{3\,\pi^2}}} = \frac{2\,e^{0.4945586761215000}}{1+\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\ \sum_{k=0}^{\infty}\frac{\left(-\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}}$$

$$\frac{2\,e^{0.9891173522430000/2}}{1+\sqrt{1-\frac{16\,e^2\times 0.9891173522430000}{3\,\pi^2}}} = \frac{2\,e^{0.4945586761215000}}{1+\sqrt{z_0}\ \sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}-z_0\right)^k z_0^{-k}}{k!}}$$

for $(\text{not}\ (z_0\in\mathbb{R}\ \text{and}\ -\infty < z_0 \le 0))$

From

$$\frac{h^2}{32} = \frac{\xi^7\,e^{4\,\phi}}{\left(1\ \pm\ \sqrt{1\ -\ \frac{\xi T}{3}\,e^{2\,\phi}}\right)^7}\left[\frac{42}{\xi}\left(1\ \pm\ \sqrt{1\ -\ \frac{\xi T}{3}\,e^{2\,\phi}}\right)\ +\ 5\,T\,e^{2\,\phi}\right]$$

We obtain:

e^(4*0.989117352243) / (((1+sqrt(1-1/3*16/(Pi)^2*e^(2*0.989117352243)))))^7 [42(1+sqrt(1-1/3*16/(Pi)^2*e^(2*0.989117352243)))+5*16/(Pi)^2*e^(2*0.989117352243)]

Input interpretation:

$$\frac{e^{4\times 0.989117352243}}{\left(1+\sqrt{1-\frac{1}{3}\times\frac{16}{\pi^2}\,e^{2\times 0.989117352243}}\right)^7\left(42\left(1+\sqrt{1-\frac{1}{3}\times\frac{16}{\pi^2}\,e^{2\times 0.989117352243}}\right)+5\times\frac{16}{\pi^2}\,e^{2\times 0.989117352243}\right)}$$

Result:

50.84107889... −
20.34506335... i

Polar coordinates:

$r = 54.76072411$ (radius), $\theta = -21.80979492°$ (angle)

54.76072411…..

Series representations:

$$\left(\left(42\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)+\frac{5\times 16\,e^{2\times 0.9891173522430000}}{\pi^2}\right)e^{4\times 0.9891173522430000}\right)\Big/\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)^7=$$

$$\left(2\left(40\,e^{5.934704113458000}+21\,e^{3.956469408972000}\,\pi^2+21\,e^{3.956469408972000}\,\pi^2\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\left(\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)\right)\Big/\left(\pi^2\left(1+\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\left(\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)^7\right)$$

$$\left(\left(42\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)+\frac{5\times 16\,e^{2\times 0.9891173522430000}}{\pi^2}\right)\right.$$
$$\left.e^{4\times 0.9891173522430000}\right)\Big/\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)^7 =$$
$$\left(2\left(40\,e^{5.934704113458000}+21\,e^{3.956469408972000}\,\pi^2+21\,e^{3.956469408972000}\,\pi^2\right.\right.$$
$$\left.\left.\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\frac{\left(-\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)\Big/$$
$$\left(\pi^2\left(1+\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\frac{\left(-\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^7\right)$$

$$\left(\left(42\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)+\frac{5\times 16\,e^{2\times 0.9891173522430000}}{\pi^2}\right)\right.$$
$$\left.e^{4\times 0.9891173522430000}\right)\Big/\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)^7 =$$
$$\left(2\left(40\,e^{5.934704113458000}+21\,e^{3.956469408972000}\,\pi^2+21\,e^{3.956469408972000}\right.\right.$$
$$\left.\left.\pi^2\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}-z_0\right)^k z_0^{-k}}{k!}\right)\right)\Big/$$
$$\left(\pi^2\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}-z_0\right)^k z_0^{-k}}{k!}\right)^7\right)$$
$$\text{for } \left(\text{not } \left(z_0\in\mathbb{R} \text{ and } -\infty < z_0 \le 0\right)\right)$$

From which:

e^(4*0.989117352243) / (((1+sqrt(1-1/3*16/(Pi)^2*e^(2*0.989117352243)))))^7 [42(1+sqrt(1-1/3*16/(Pi)^2*e^(2*0.989117352243)))+5*16/(Pi)^2*e^(2*0.989117352243)]*1/34

Input interpretation:

$$\frac{e^{4\times 0.989117352243}}{\left(1+\sqrt{1-\frac{1}{3}\times\frac{16}{\pi^2}\,e^{2\times 0.989117352243}}\right)^7}$$
$$\left(42\left(1+\sqrt{1-\frac{1}{3}\times\frac{16}{\pi^2}\,e^{2\times 0.989117352243}}\right)+5\times\frac{16}{\pi^2}\,e^{2\times 0.989117352243}\right)\times\frac{1}{34}$$

Result:

1.495325850… −
0.5983842161… i

Polar coordinates:

$r = 1.610609533$ (radius), $\theta = -21.80979492°$ (angle)

1.610609533…. result that is a good approximation to the value of the golden ratio 1.618033988749...

Series representations:

$$\left(\left(42\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)+\frac{5\times 16\,e^{2\times 0.9891173522430000}}{\pi^2}\right)\right.$$
$$\left.e^{4\times 0.9891173522430000}\right)\Big/\left(34\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)^7\right)=$$
$$\left(40\,e^{5.934704113458000}+21\,e^{3.956469408972000}\,\pi^2+21\,e^{3.956469408972000}\,\pi^2\right.$$
$$\left.\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\left(\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)\Big/$$
$$\left(17\,\pi^2\left(1+\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\left(\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)^7\right)$$

$$\left(\left(42\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)+\frac{5\times 16\,e^{2\times 0.9891173522430000}}{\pi^2}\right)\right.$$
$$\left.e^{4\times 0.9891173522430000}\right)\Big/\left(34\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)^7\right)=$$
$$\left(40\,e^{5.934704113458000}+21\,e^{3.956469408972000}\,\pi^2+21\,e^{3.956469408972000}\,\pi^2\right.$$
$$\left.\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\frac{\left(-\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/$$
$$\left(17\,\pi^2\left(1+\sqrt{-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}}\sum_{k=0}^{\infty}\frac{\left(-\frac{3}{16}\right)^k\left(-\frac{e^{1.978234704486000}}{\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^7\right)$$

$$\left(\left(42\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)+\frac{5\times 16\,e^{2\times 0.9891173522430000}}{\pi^2}\right)\right.$$
$$\left.e^{4\times 0.9891173522430000}\right)\Big/\left(34\left(1+\sqrt{1-\frac{16\,e^{2\times 0.9891173522430000}}{3\,\pi^2}}\right)^7\right)=$$
$$\left(40\,e^{5.934704113458000}+21\,e^{3.956469408972000}\,\pi^2+21\,e^{3.956469408972000}\right.$$
$$\left.\pi^2\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}-z_0\right)^k z_0^{-k}}{k!}\right)\Big/$$
$$\left(17\,\pi^2\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1-\frac{16\,e^{1.978234704486000}}{3\,\pi^2}-z_0\right)^k z_0^{-k}}{k!}\right)^7\right)$$

for $(\text{not } (z_0 \in \mathbb{R} \text{ and } -\infty < z_0 \le 0))$

Now, we have:

$$e^{2C} = \frac{2\xi e^{-\frac{\phi}{2}}}{1 + \sqrt{1 + \frac{\xi\Lambda}{3} e^{2\phi}}}, \qquad (2.9)$$

$$\frac{h^2}{32} = \frac{e^{-4\phi}}{\left[1 + \sqrt{1 + \frac{\Lambda}{3} e^{2\phi}}\right]^7} \left[42\left(1 + \sqrt{1 + \frac{\Lambda}{3} e^{2\phi}}\right) - 13\Lambda e^{2\phi}\right]. \qquad (2.10)$$

For:

$\xi = 1$

$\Lambda \simeq \frac{4\pi^2}{25}$

$\phi = 0.989117352243$

From

$$e^{2C} = \frac{2\xi e^{-\frac{\phi}{2}}}{1 + \sqrt{1 + \frac{\xi\Lambda}{3} e^{2\phi}}},$$

we obtain:

((2*e^(-0.989117352243/2))) /
((((1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243)))))))

Input interpretation:

$$\frac{2\, e^{-0.989117352243/2}}{1 + \sqrt{1 + \frac{1}{3}\left(\frac{1}{25}\left(4\,\pi^2\right)\right) e^{2\times 0.989117352243}}}$$

Result:

0.382082347529...

0.382082347529….

Series representations:

$$\frac{2\,e^{-0.9891173522430000/2}}{1+\sqrt{1+\frac{(4\pi^2)e^{2\times 0.9891173522430000}}{3\times 25}}} = 2\Bigg/\left(e^{0.4945586761215000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)\right)$$

$$\frac{2\,e^{-0.9891173522430000/2}}{1+\sqrt{1+\frac{(4\pi^2)e^{2\times 0.9891173522430000}}{3\times 25}}} = 2\Bigg/\left(e^{0.4945586761215000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)$$

$$\frac{2\,e^{-0.9891173522430000/2}}{1+\sqrt{1+\frac{(4\pi^2)e^{2\times 0.9891173522430000}}{3\times 25}}} = \frac{2}{e^{0.4945586761215000}\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}\right)}$$

for $\left(\text{not}\left(z_0\in\mathbb{R}\text{ and }-\infty<z_0\le 0\right)\right)$

From which:

1+1/(((4((2*e^(-0.989117352243/2))) /
((((1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))))))))

Input interpretation:

$$1+\frac{1}{4\times\frac{2\,e^{-0.989117352243/2}}{1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}}}$$

Result:

1.65430921270...

1.6543092….. We note that, the result 1.6543092... is very near to the 14th root of the following Ramanujan's class invariant $Q = \left(G_{505}/G_{101/5}\right)^3$ = 1164.2696 i.e. 1.65578...

Indeed:

$$G_{505} = P^{-1/4}Q^{1/6} = (\sqrt{5}+2)^{1/2}\left(\frac{\sqrt{5}+1}{2}\right)^{1/4}(\sqrt{101}+10)^{1/4} \times \left((130\sqrt{5}+29\sqrt{101})+\sqrt{169440+7540\sqrt{505}}\right)^{1/6}.$$

Thus, it remains to show that

$$(130\sqrt{5}+29\sqrt{101})+\sqrt{169440+7540\sqrt{505}} = \left(\sqrt{\frac{113+5\sqrt{505}}{8}}+\sqrt{\frac{105+5\sqrt{505}}{8}}\right)^3,$$

which is straightforward. □

$$\sqrt[14]{\left(\sqrt{\frac{113+5\sqrt{505}}{8}}+\sqrt{\frac{105+5\sqrt{505}}{8}}\right)^3} = 1{,}65578\ldots$$

Series representations:

$$1+\frac{1}{4\left(2\,e^{-0.9891173522430000/2}\right)}{1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}}$$

$$1+\frac{e^{0.4945586761215000}}{8}+\frac{1}{8}e^{0.4945586761215000}\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}$$

$$\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}$$

$$1+\frac{1}{\frac{4\left(2\,e^{-0.9891173522430000/2}\right)}{1+\sqrt{1+\frac{(4\pi^2)e^{2\times 0.9891173522430000}}{3\times 25}}}}=$$

$$1+\frac{e^{0.4945586761215000}}{8}+\frac{1}{8}\,e^{0.4945586761215000}\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}$$

$$\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}$$

$$1+\frac{1}{\frac{4\left(2\,e^{-0.9891173522430000/2}\right)}{1+\sqrt{1+\frac{(4\pi^2)e^{2\times 0.9891173522430000}}{3\times 25}}}}=1+\frac{e^{0.4945586761215000}}{8}+$$

$$\frac{1}{8}\,e^{0.4945586761215000}\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}$$

for $(\text{not}\,(z_0\in\mathbb{R}\ \text{and}\ -\infty<z_0\le 0))$

And from

$$\frac{h^2}{32}=\frac{e^{-4\phi}}{\left[1+\sqrt{1+\frac{\Lambda}{3}e^{2\phi}}\right]^7}\left[42\left(1+\sqrt{1+\frac{\Lambda}{3}e^{2\phi}}\right)-13\,\Lambda\,e^{2\phi}\right].$$

we obtain:

e^(-4*0.989117352243) / [1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243)))]^7 * [42(1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243)))-13*(4Pi^2)/25*e^(2*0.989117352243)]

Input interpretation:

$$\frac{e^{-4\times 0.989117352243}}{\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)^7\left(42\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)-13\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}\right)}$$

Result:

$-0.034547055658\ldots$

-0.034547055658…

Series representations:

$$\left(\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}-\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)e^{-4\times 0.9891173522430000}\right)\Big/\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7=$$

$$-\left(\left(42\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\pi^2-25\,e^{1.978234704486000}\sqrt{\frac{4\,e^{1.978234704486000}\pi^2}{75}}\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)\right)\Big/\left(25\,e^{5.934704113458000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000}\pi^2}{75}}\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)^7\right)\right)$$

$$\left(\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}-\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right.$$
$$\left.e^{-4\times 0.9891173522430000}\right)\Big/\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7=$$
$$-\left(\left(\left(42\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\pi^2-\right.\right.\right.\right.$$
$$25\,e^{1.978234704486000}\sqrt{\frac{4\,e^{1.978234704486000}\pi^2}{75}}$$
$$\left.\left.\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000}\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)\right)\Big/\left(25\,e^{5.934704113458000}\right.$$
$$\left.\left.\left(1+\sqrt{\frac{4\,e^{1.978234704486000}\pi^2}{75}}\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000}\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^7\right)\right)$$

$$\left(\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}-\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right.$$
$$\left.e^{-4\times 0.9891173522430000}\right)\Big/\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7=$$
$$-\left(\left(\left(42\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\pi^2-25\,e^{1.978234704486000}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000}\pi^2}{75}-z_0\right)^k z_0^{-k}}{k!}\right)\right)\right)\Big/\left(25\right.\right.$$
$$\left.\left.e^{5.934704113458000}\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000}\pi^2}{75}-z_0\right)^k z_0^{-k}}{k!}\right)^7\right)\right)$$

for $\left(\text{not}\left(z_0\in\mathbb{R}\text{ and }-\infty<z_0\le 0\right)\right)$

From which:

47 *1/(((-1/((((((e^(-4*0.989117352243) /
[1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))]^7 *
[42(1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243)))))-
13*(4Pi^2)/25*e^(2*0.989117352243))]))))))))

Input interpretation:

$$47\left(-\left(1\Big/1\Big/\left(\frac{e^{-4\times 0.989117352243}}{\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)^7}\left(42\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)-13\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}\right)\right)\right)\right)$$

Result:

1.6237116159...

1.6237116159…. result that is an approximation to the value of the golden ratio 1.618033988749...

Series representations:

$$-\left(47\Big/1\Big/\left(e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)-\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\Big/\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)\right)=$$

$$\left(1974\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\pi^2-25\,e^{1.978234704486000}\sqrt{\frac{4\,e^{1.978234704486000}\pi^2}{75}}\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)\Big/\left(25\,e^{5.934704113458000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000}\pi^2}{75}}\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000}\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)^7\right)\right)$$

$$-\left(47 \Big/ 1 \Big/ \left(e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.-\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$
$$\left.\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)=$$
$$\left(1974\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\,\pi^2-\right.\right.$$
$$25\,e^{1.978234704486000}\sqrt{\frac{4\,e^{1.978234704486000}\,\pi^2}{75}}$$
$$\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000}\,\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)\Big/\left(25\,e^{5.934704113458000}\right.$$
$$\left.\left(1+\sqrt{\frac{4\,e^{1.978234704486000}\,\pi^2}{75}}\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000}\,\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^7\right)$$

$$-\left(47 \Big/ 1 \Big/ \left(e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.-\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$
$$\left.\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)=$$
$$\left(1974\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\,\pi^2-25\,e^{1.978234704486000}\right.\right.$$
$$\left.\left.\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000}\,\pi^2}{75}-z_0\right)^k z_0^{-k}}{k!}\right)\right)\Big/\left(25\right.$$
$$\left.e^{5.934704113458000}\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000}\,\pi^2}{75}-z_0\right)^k z_0^{-k}}{k!}\right)^7\right)$$

for $\left(\text{not}\left(z_0\in\mathbb{R}\text{ and }-\infty<z_0\le 0\right)\right)$

And again:

32((((e^(-4*0.989117352243) /
[1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))]^7 *
[42(1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))-
13*(4Pi^2)/25*e^(2*0.989117352243))]])))

Input interpretation:

$$32\left(\frac{e^{-4\times 0.989117352243}}{\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)^7}\left(42\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)-13\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}\right)\right)$$

Result:

−1.1055057810...

-1.1055057810….

We note that the result -1.1055057810…. is very near to the value of Cosmological Constant, less 10^{-52} , thence 1.1056, with minus sign

Series representations:

$$\left(32\, e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.$$
$$\left.\left.\left.\frac{1}{25}\left(4\pi^2\right)13\, e^{2\times 0.9891173522430000}\right)\right)\right)\Bigg/$$
$$\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7=$$
$$-\left(\left(1344\left(-25\, e^{1.978234704486000}+52\, e^{3.956469408972000}\,\pi^2-\right.\right.\right.$$
$$25\, e^{1.978234704486000}\sqrt{\frac{4\, e^{1.978234704486000}\,\pi^2}{75}}$$
$$\left.\left.\left.\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000}\,\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)\right)\Bigg/\left(25\, e^{5.934704113458000}\right.\right.$$
$$\left.\left.\left(1+\sqrt{\frac{4\, e^{1.978234704486000}\,\pi^2}{75}}\;\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000}\,\pi^2\right)^{-k}\binom{\frac{1}{2}}{k}\right)^7\right)\right)$$

$$\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.$$
$$\left.\left.\left.\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$
$$\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7=$$
$$-\left(\left(1344\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\,\pi^2-\right.\right.\right.$$
$$25\,e^{1.978234704486000}\sqrt{\frac{4\,e^{1.978234704486000}\,\pi^2}{75}}$$
$$\left.\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000}\,\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\right)\Big/\left(25\,e^{5.934704113458000}\right.\right.$$
$$\left.\left.\left(1+\sqrt{\frac{4\,e^{1.978234704486000}\,\pi^2}{75}}\;\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000}\,\pi^2\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^7\right)\right)$$

$$\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.$$
$$\left.\left.\left.\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$
$$\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7=$$
$$-\left(\left(1344\left(-25\,e^{1.978234704486000}+52\,e^{3.956469408972000}\,\pi^2-25\,e^{1.978234704486000}\right.\right.\right.$$
$$\left.\left.\left.\sqrt{z_0}\;\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000}\,\pi^2}{75}-z_0\right)^k z_0^{-k}}{k!}\right)\right)\Big/\left(25\right.\right.$$
$$\left.\left.e^{5.934704113458000}\left(1+\sqrt{z_0}\;\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000}\,\pi^2}{75}-z_0\right)^k z_0^{-k}}{k!}\right)^7\right)\right)$$

for $\left(\text{not}\left(z_0\in\mathbb{R}\text{ and }-\infty<z_0\le 0\right)\right)$

And:

-[32((((e^(-4*0.989117352243) /
[1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))]^7 *
[42(1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243)))))-
13*(4Pi^2)/25*e^(2*0.989117352243))])))]^5

Input interpretation:

$$-\left[32\left(\frac{e^{-4\times 0.989117352243}}{\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)^7}\left(42\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)-13\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}\right)\right)\right]^5$$

Result:

1.651220569...

1.651220569…. result very near to the 14th root of the following Ramanujan's class invariant $Q = \left(G_{505}/G_{101/5}\right)^3$ = 1164.2696 i.e. 1.65578...

Series representations:

$$-\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Bigg/$$

$$\left.\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)^5=$$

$$\left(4\,385\,270\,057\,140\,224\left(-25+52\,e^{1.978234704486000\,\pi^2}-25\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.$$

$$\left.\left.\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)^5\right)\Bigg/$$

$$\left(9\,765\,625\,e^{19.78234704486000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.$$

$$\left.\left.\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)^{35}\right)$$

$$-\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$
$$\left.\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)^5=$$
$$\left(4\,385\,270\,057\,140\,224\left(-25+52\,e^{1.978234704486000\,\pi^2}-25\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.$$
$$\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^5\right)\Big/$$
$$\left(9\,765\,625\,e^{19.78234704486000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.$$
$$\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^{35}\right)$$

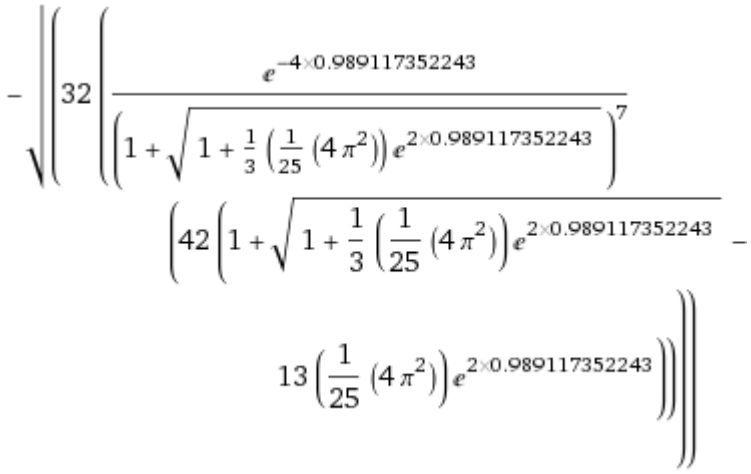
$$-\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$
$$\left.\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)^5=$$
$$\left(4\,385\,270\,057\,140\,224\left(-25+52\,e^{1.978234704486000\,\pi^2}-\right.\right.$$
$$\left.\left.25\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}\right)^5\right)\Big/$$
$$\left(9\,765\,625\,e^{19.78234704486000}\right.$$
$$\left.\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}\right)^{35}\right)$$

for $\left(\text{not}\left(z_0\in\mathbb{R}\text{ and }-\infty<z_0\le 0\right)\right)$

We obtain also:

-[32((((e^(-4*0.989117352243) /
[1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))]^7 *
[42(1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243)))))-
13*(4Pi^2)/25*e^(2*0.989117352243))]))))]^1/2

Input interpretation:



Result:

-0

$1.0514303501\ldots\, i$

Polar coordinates:

$r = 1.05143035007$ (radius), $\theta = -90°$ (angle)

1.05143035007

Series representations:

$$-\sqrt{\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{1}{25}(4\pi^2)\,13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$

$$\left.\left.\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)\right)=-\frac{8}{5}\sqrt{21}$$

$$\sqrt{\left(\left(25-52\,e^{1.978234704486000\,\pi^2}+25\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.}$$

$$\left.\left.\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)\Big/\left(e^{3.956469408972000}\right.\right.$$

$$\left.\left.\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)^7\right)\right)$$

$$-\sqrt{\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{1}{25}(4\pi^2)\,13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$

$$\left.\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)\Big)=-\frac{8}{5}\sqrt{21}$$

$$\sqrt{\left(\left(25-52\,e^{1.978234704486000\,\pi^2}+25\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.}$$

$$\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/$$

$$\left(e^{3.956469408972000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.$$

$$\left.\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^7\right)\right)$$

$$-\sqrt{\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\;-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{1}{25}(4\pi^2)\,13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/$$

$$\left.\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)\Big)=$$

$$-\frac{8}{5}\sqrt{21}\,\sqrt{\left(\left(25-52\,e^{1.978234704486000\,\pi^2}+\right.\right.}$$

$$\left.25\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}\right)\Big/$$

$$\left(e^{3.956469408972000}\right.$$

$$\left.\left.\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}\right)^7\right)\right)$$

for $(\text{not}\,(z_0\in\mathbb{R}\ \text{and}\ -\infty<z_0\le 0))$

1 / -[32((((e^(-4*0.989117352243) /
[1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))]^7 *
[42(1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243)))))-
13*(4Pi^2)/25*e^(2*0.989117352243))]))))]^1/2

Input interpretation:

$$-\left(1\Big/\left(\sqrt{\left(32\left(\frac{e^{-4\times 0.989117352243}}{\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)^7}\left(42\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}}\right)-13\left(\frac{1}{25}\left(4\pi^2\right)\right)e^{2\times 0.989117352243}\right)\right)\right)}\right)\right)$$

Result:

0.95108534763... i

Polar coordinates:

$r = 0.95108534763$ (radius), $\theta = 90°$ (angle)

0.95108534763

We know that the primordial fluctuations are consistent with Gaussian purely adiabatic scalar perturbations characterized by a power spectrum with a spectral index $n_s = 0.965 \pm 0.004$, consistent with the predictions of slow-roll, single-field, inflation.

Thence 0.95108534763 is a result very near to the spectral index n_s , to the mesonic Regge slope, to the inflaton value at the end of the inflation 0.9402 and to the value of the following Rogers-Ramanujan continued fraction:

$$\frac{e^{-\frac{\pi}{5}}}{\sqrt{(\varphi-1)\sqrt{5}}-\varphi+1}=1-\cfrac{e^{-\pi}}{1+\cfrac{e^{-2\pi}}{1+\cfrac{e^{-3\pi}}{1+\cfrac{e^{-4\pi}}{1+\ldots}}}}\approx 0.9568666373$$

Series representations:

$$-\left(1\Big/\left(\sqrt{\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\right.\right.\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left.\left.-\frac{1}{25}(4\pi^2)\,13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)\right)\right)=$$

$$-\left(5\Big/\left(8\sqrt{21}\,\sqrt{\left(\left(25-52\,e^{1.978234704486000\,\pi^2}+25\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)\right)\Big/\left(e^{3.956469408972000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left.\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}\right)^7\right)\right)\right)\right)$$

$$-\left(1\Big/\left(\sqrt{\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right.\right.\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left.\left.-\frac{1}{25}\left(4\pi^2\right)13\,e^{2\times 0.9891173522430000}\right)\right)\right)\Big/\right.\right.\right.$$
$$\left.\left.\left.\left.\left(1+\sqrt{1+\frac{\left(4\pi^2\right)e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)\right)\right)=$$
$$-\left(5\Big/\left(8\sqrt{21}\,\sqrt{\left(\left(25-52\,e^{1.978234704486000\,\pi^2}+25\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)\Big/\right.\right.\right.$$
$$\left.\left.\left.\left(e^{3.956469408972000}\left(1+\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\right.\right.\right.\right.$$
$$\left.\left.\left.\left.\left.\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}\right)^7\right)\right)\right)\right)$$

$$-\left(1\Big/\left(\sqrt{\left(\left(32\,e^{-4\times 0.9891173522430000}\left(42\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\right)-\frac{1}{25}\right.\right.\right.\right.\right.$$

$$\left.\left.\left.(4\pi^2)\,13\,e^{2\times 0.9891173522430000}\right)\right)\Big/\left(1+\sqrt{1+\frac{(4\pi^2)\,e^{2\times 0.9891173522430000}}{3\times 25}}\right)^7\right)\right)\right)=$$

$$-\left(5\Big/\left(8\sqrt{21}\sqrt{\left(\left(25-52\,e^{1.978234704486000\,\pi^2}+25\sqrt{z_0}\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}\right)\Big/\right.\right.\right.$$

$$\left.\left.\left(e^{3.956469408972000}\left(1+\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}\right)^7\right)\right)\right)$$

for $(\text{not}\,(z_0\in\mathbb{R}\ \text{and}\ -\infty<z_0\le 0))$

From the previous expression

$$\frac{e^{-4\times 0.989117352243}}{\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}(4\pi^2)\right)e^{2\times 0.989117352243}}\right)^7\left(42\left(1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}(4\pi^2)\right)e^{2\times 0.989117352243}}\right)-13\left(\frac{1}{25}(4\pi^2)\right)e^{2\times 0.989117352243}\right)}$$

= -0.034547055658…

we have also:

1+1/(((4((2*e^(-0.989117352243/2))) /
((((1+sqrt(((1+1/3*(4Pi^2)/25*e^(2*0.989117352243))))))))))) + (-0.034547055658)

Input interpretation:

$$1+\frac{1}{4\times\frac{2\,e^{-0.989117352243/2}}{1+\sqrt{1+\frac{1}{3}\left(\frac{1}{25}\left(4\,\pi^2\right)\right)e^{2\times0.989117352243}}}}-0.034547055658$$

Result:

1.61976215705...

1.61976215705….. result that is a very good approximation to the value of the golden ratio 1.618033988749...

Series representations:

$$1+\frac{1}{4\left(2\,e^{-0.9891173522430000/2}\right)}{1+\sqrt{1+\frac{\left(4\,\pi^2\right)e^{2\times0.9891173522430000}}{3\times25}}}-0.0345470556580000=$$

$$0.9654529443420000+\frac{e^{0.4945586761215000}}{8}+\frac{1}{8}\,e^{0.4945586761215000}$$
$$\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\sum_{k=0}^{\infty}\left(\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\binom{\frac{1}{2}}{k}$$

$$1+\frac{1}{4\left(2\,e^{-0.9891173522430000/2}\right)}{1+\sqrt{1+\frac{\left(4\,\pi^2\right)e^{2\times0.9891173522430000}}{3\times25}}}-0.0345470556580000=$$

$$0.9654529443420000+\frac{e^{0.4945586761215000}}{8}+\frac{1}{8}\,e^{0.4945586761215000}$$
$$\sqrt{\frac{4\,e^{1.978234704486000\,\pi^2}}{75}}\sum_{k=0}^{\infty}\frac{\left(-\frac{75}{4}\right)^k\left(e^{1.978234704486000\,\pi^2}\right)^{-k}\left(-\frac{1}{2}\right)_k}{k!}$$

$$1+\frac{1}{\frac{4\left(2\,e^{-0.9891173522430000/2}\right)}{1+\sqrt{1+\frac{(4\pi^2)e^{2\times 0.9891173522430000}}{3\times 25}}}}-0.0345470556580000=$$

$$0.9654529443420000+\frac{e^{0.4945586761215000}}{8}+$$

$$\frac{1}{8}e^{0.4945586761215000}\sqrt{z_0}\sum_{k=0}^{\infty}\frac{(-1)^k\left(-\frac{1}{2}\right)_k\left(1+\frac{4\,e^{1.978234704486000\,\pi^2}}{75}-z_0\right)^k z_0^{-k}}{k!}$$

$$\text{for } (\text{not } (z_0\in\mathbb{R} \text{ and } -\infty < z_0 \le 0))$$

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Conclusion

To conclude we highlight once again, as π, ϕ, 1 / ϕ and 11, or a Lucas number (often in the development of the Ramanujan equations we use Fibonacci and Lucas numbers), they play a fundamental role in the development, and therefore, in the final results of Ramanujan's equations. It always seems more probable that π, ϕ, 1 / ϕ and 11 and other numbers connected to the Fibonacci and Lucas sequences, are not only mathematical constants and / or simple numbers, but "information", which if inserted in the most varied combinations possible following always a precise logic, they lead to the solutions obtained so far: masses of particles (Higgs boson and pion), as described in the paper, and other physical and cosmological parameters.

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